

=> file reg

FILE 'REGISTRY' ENTERED AT 14:42:54 ON 02 JAN 2003  
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FILE 'REGISTRY' ENTERED AT 12:46:57 ON 02 JAN 2003

E DIMETHYLSULFOXIDE/CN  
E DIMETHYL SULFOXIDE/CN  
L1 1 SEA "DIMETHYL SULFOXIDE"/CN  
E N-PROPANALAMIDE/CN  
E PROPANALAMIDE/CN  
E N-PROPANAL AMIDE/CN  
E PROPANAL AMIDE/CN

FILE 'HCA' ENTERED AT 13:30:11 ON 02 JAN 2003

L2 1 SEA ?PROPANALAMID?  
D KWIC  
L3 6 SEA ?PROPANAL (2A) AMID?  
D L3 1-6 KWIC

FILE 'HCAPLUS' ENTERED AT 13:36:54 ON 02 JAN 2003

L4 574 SEA MAY C?/AU  
L5 429868 SEA SEMICOND? OR SEMI (2A) (COND# OR CONDUCT?)  
L6 75 SEA L4 AND L5  
L7 52563 SEA L1 OR DMSO OR DIMETHYLSULFOXIDE# OR DIMETHYLSULPHOXID  
E# OR (DIME OR DI (A) (METHYL# OR ME) OR DIMETHYL#) (2A) (SUL  
FOXIDE# OR SULPHOXIDE#)  
L8 1 SEA L4 AND L7  
L9 0 SEA L8 AND L5  
D L8 ALL  
L10 80814 SEA CMP OR POLISH?  
L11 9 SEA L6 AND L10  
D L11 1-9 TI

FILE 'REGISTRY' ENTERED AT 13:40:46 ON 02 JAN 2003

E ANALINE/CN  
E ANILINE/CN  
L12 1 SEA ANILINE/CN  
E N,N-DIMETHYLANALINE/CN  
E N,N-DIMETHYLANILINE/CN  
L13 1 SEA "N,N-DIMETHYLANILINE"/CN

FILE 'HCAPLUS' ENTERED AT 13:41:35 ON 02 JAN 2003

L14 36667 SEA L12  
L15 7483 SEA L13  
L16 0 SEA L6 AND L14  
L17 0 SEA L6 AND L15

L18 1 SEA L4 AND L7  
L19 0 SEA L4 AND L14  
L20 0 SEA L4 AND L15  
D L18 1 TI  
D L11 1-9 ALL

FILE 'REGISTRY' ENTERED AT 13:57:09 ON 02 JAN 2003

E SILICON/CN

L21 1 SEA SILICON/CN

FILE 'HCA' ENTERED AT 14:01:32 ON 02 JAN 2003

L22 785226 SEA L21 OR SEMICOND? OR SEMI(2A) (COND# OR CONDUCT?) OR  
INTEGRA?(2A)CIRCUIT? OR IC OR ICS OR I(W)C OR TRANSISTOR?  
OR DIOD? OR VLSI? OR (SILICON OR SI) (2A) (SUBSTRAT? OR  
CHIP OR CHIPS OR DIE OR DIES OR BUMP? OR PAD OR PADS OR  
SURFACE? OR SUBSTRUCT? OR UNDERSTRUCT? OR WAFER? OR  
DISK? OR DISC#)  
L23 QUE WAFER? OR CHIP OR CHIPS OR DIE OR DIES OR DISK? OR  
DISC#  
L24 42734 SEA NONAQ# OR NONAQUEOUS? OR NONWATER? OR NONH2O OR  
NON(2A) (AQ# OR AQUEOUS? OR WATER? OR H2O)  
L25 725 SEA (NONAQ# OR NONAQUEOUS? OR NONWATER? OR NONH2O OR  
NON(2A) (AQ# OR AQUEOUS? OR WATER? OR H2O)) (3A) POLAR?  
L26 119 SEA (NONAQ# OR NONAQUEOUS? OR NONWATER? OR NONH2O OR  
NON(2A) (AQ# OR AQUEOUS? OR WATER? OR H2O)) (3A) APROTIC?  
L27 317980 SEA CMP OR C(W)M(W)P OR POLISH? OR PLANAR? OR FURBISH?  
OR BURNISH? OR GRIND? OR FLAT OR FLATTEN? OR UNROUGH? OR  
NONROUGH?  
L28 169824 SEA SMOOTH?  
L29 150264 SEA L7 OR L12 OR L13 OR DMSO OR ?PROPANALAMID? OR  
?PROPANAL(2A)AMID? OR ANALINE# OR ANILINE# OR DIMETHYLANA  
LINE# OR DIMETHYLANILINE# OR (DIMETHYL# OR DI(A) (ME OR  
METHYL)) (2A) (ANALINE# OR ANILINE#)

FILE 'REGISTRY' ENTERED AT 14:15:15 ON 02 JAN 2003

E HMPA/CN

L30 1 SEA HMPA/CN  
D SCAN

E DIMETHYLACETAMIDE/CN

L31 1 SEA DIMETHYLACETAMIDE/CN

FILE 'HCA' ENTERED AT 14:18:19 ON 02 JAN 2003

L32 21209 SEA L30 OR L31 OR HEXAMETHYLPHOSPHORAMIDE# OR HMPA OR  
DIMETHYLACETAMIDE# OR (DIME OR DI(A) (ME OR METHYL) OR  
DIMETHYL#) (2A) ACETAMIDE# OR DMA  
L33 71859 SEA L22 AND L23  
L34 51 SEA L33 AND L24  
L35 13 SEA L34 AND (L27 OR L28)  
L36 0 SEA L35 AND (L29 OR L32)  
E AMINES/CV  
L37 99623 SEA AMINES/CV  
L38 2 SEA L35 AND L37

L39 8174 SEA L22 AND L23 AND (L27 OR L28)  
L40 13 SEA L39 AND L24  
L41 9 SEA L39 AND L29  
L42 7 SEA L39 AND L32  
L43 1 SEA L39 AND (L25 OR L26)  
L44 56037 SEA (L22 OR L23) AND (L27 OR L28)  
L45 78 SEA L44 AND L24  
L46 1 SEA L44 AND L25  
L47 0 SEA L44 AND L26  
L48 81 SEA L44 AND L29  
L49 21 SEA L44 AND L32  
L50 2 SEA L45 AND L48  
L51 0 SEA L45 AND L49  
L52 4 SEA L48 AND L49  
L53 64 SEA L48 AND L27  
L54 19 SEA L48 AND L28  
L55 2 SEA L53 AND L54  
L56 24 SEA L38 OR L41 OR L42 OR L43 OR L46 OR L50 OR L52 OR L55  
L57 10 SEA (L35 OR L40) NOT L56  
L58 11 SEA L49 NOT (L56 OR L57)

=> file hca

FILE 'HCA' ENTERED AT 14:43:07 ON 02 JAN 2003

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=> d l56 1-24 cbib abs hitstr hitind

X L56 ANSWER 1 OF 24 HCA COPYRIGHT 2003 ACS  
136:310512 Thermal induced instability of thin polymer films: a study by  
atomic force microscopy. Gan, Daoji; Cao, Wenjing; Puat, Ng E.  
(School of Chemistry and Biochemistry, Georgia Institute of  
Technology, Atlanta, GA, 30332, USA). High Performance Polymers,  
13(4), 259-267 (English) 2001. CODEN: HPPOEX. ISSN: 0954-0083.  
Publisher: Institute of Physics Publishing.  
AB Systematic studies of thin-film stabilities of random copolymers  
consisting of decyl methacrylate (DMA)/methyl methacrylate  
(MMA) units on a polystyrene (PS) layer tethered to **silicon**  
**wafer** have been carried out by at. force microscopy (AFM) as  
functions of mol. wt. and chem. compn. Upon annealing at an  
elevated temp. above the glass transition temp. (Tg), the initially  
**flat** polymer films break up into small holes, and finally  
form macroscopic droplets. The tethered PS layer was found to be  
dense enough to inhibit penetration of the copolymers into the lower  
layer during the annealing process. AFM studies at an early stage  
showed that the velocity of the hole growth was dependent upon both  
the mol. wts. and chem. compns. of the copolymers. However, the  
equil. contact angles of the copolymer droplets formed on the PS

layer were more dependent on the chem. compns. than on the mol. wts.  
IT 7440-21-3, Silicon, miscellaneous  
(AFM study of thermal induced instability of methacrylate  
copolymer film on polystyrene layer tethered to **silicon**  
**wafer**)

RN 7440-21-3 HCA

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

CC 37-5 (Plastics Manufacture and Processing)

IT Annealing

Glass transition temperature

(AFM study of thermal induced instability of methacrylate  
copolymer film on polystyrene layer tethered to **silicon**  
**wafer**)

IT 7440-21-3, Silicon, miscellaneous 9003-53-6D, Polystyrene,  
reaction products with (chloromethyl)phenyltrimethoxysilane  
24413-04-5D, p-(Chloromethyl)phenyltrimethoxysilane, reaction  
products with polystyrene  
(AFM study of thermal induced instability of methacrylate  
copolymer film on polystyrene layer tethered to **silicon**  
**wafer**)

IT 56279-65-3, Decyl methacrylate-methyl methacrylate copolymer  
(AFM study of thermal induced instability of methacrylate  
copolymer film on polystyrene layer tethered to **silicon**  
**wafer**)

X L56 ANSWER 2 OF 24 HCA COPYRIGHT 2003 ACS

136:271639 Chemical mechanical **polishing** stopper film, process  
for producing the same, and method of chemical mechanical  
**polishing**. Nishikawa, Michinori; Okada, Takashi; Yamada,  
Kinji (JSR Corporation, Japan). Eur. Pat. Appl. EP 1188807 A2  
\* 20020320 35 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR,  
GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO.  
(English). CODEN: EPXXDW. APPLICATION: EP 2001-120403 20010827.  
PRIORITY: JP 2000-257536 20000828.

AB A chem. mech. **polishing** stopper film comprises .gtoreq.1  
org. polymer, said film having a dielec. const. of .ltoreq.4 such as  
polyarylenes, arom. polyethers, and polyacetylenes. A typical  
polymer was manufd. by 16.7 g 9,9-bis(methylsulfonyloxy)fluorene 20  
h at 70.degree. with 10.8 g 2,4-dichlorotoluene in N,N-  
**dimethylacetamide**-THF mixt. in the presence of NaI, NiCl<sub>2</sub>,  
Ph<sub>3</sub>P, and Zn powder (activated with HOAc) under Ar.

IT 7440-21-3, Silicon, processes  
(**wafers**; chem. mech. **polishing** stopper films  
based on polyarylenes or arom. polyethers or polyacetylenes)

RN 7440-21-3 HCA

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

- IC ICM C09D171-00  
ICS C08G065-40; H01L021-32; B24B037-04
- CC 76-3 (Electric Phenomena)  
Section cross-reference(s): 38, 66
- ST polyarylene chem mech **polishing** stopper film;  
polyacetylene chem mech **polishing** stopper film;  
bismethylsulfonyloxyfluorene dichlorotoluene copolymer manuf chem  
mech **polishing** stopper film; arom polyether chem mech  
**polishing** stopper film
- IT Polyethers, uses  
(arom., cardo; chem. mech. **polishing** stopper films  
based on polyarylenes or arom. polyethers or polyacetylenes)
- IT Polyethers, uses  
(arom.; chem. mech. **polishing** stopper films based on  
polyarylenes or arom. polyethers or polyacetylenes)
- IT **Semiconductor** device fabrication  
(chem. mech. **polishing** stopper films based on  
polyarylenes or arom. polyethers or polyacetylenes)
- IT Polyacetylenes, uses  
(chem. mech. **polishing** stopper films based on  
polyarylenes or arom. polyethers or polyacetylenes)
- IT **Polishing**  
(chem.-mech.; chem. mech. **polishing** stopper films based  
on polyarylenes or arom. polyethers or polyacetylenes)
- IT Polyketones  
(polyether-, arom., cardo; chem. mech. **polishing**  
stopper films based on polyarylenes or arom. polyethers or  
polyacetylenes)
- IT Cardo polymers  
(polyether-polyketones, arom.; chem. mech. **polishing**  
stopper films based on polyarylenes or arom. polyethers or  
polyacetylenes)
- IT Cardo polymers  
(polyethers, arom.; chem. mech. **polishing** stopper films  
based on polyarylenes or arom. polyethers or polyacetylenes)
- IT Polyethers, uses  
(polyketone-, arom., cardo; chem. mech. **polishing**  
stopper films based on polyarylenes or arom. polyethers or  
polyacetylenes)
- IT 349672-97-5P, 9,9-Bis(4-hydroxyphenyl)fluorene-9,9-bis(4-hydroxy-3-  
methylphenyl)fluorene-4,4'-difluorobenzophenone copolymer  
404823-96-7P, 9,9-Bis(methylsulfonyloxy)fluorene-2,4-dichlorotoluene  
copolymer 404892-84-8P  
(chem. mech. **polishing** stopper films based on  
polyarylenes or arom. polyethers or polyacetylenes)
- IT **7440-21-3, Silicon**, processes  
(**wafers**; chem. mech. **polishing** stopper films  
based on polyarylenes or arom. polyethers or polyacetylenes)

L56 ANSWER 3 OF 24 HCA COPYRIGHT 2003 ACS

135:100981 Diamond slurry for chemical-mechanical **polishing** of **semiconductor wafers**. Li, Yuzhuo; Cerutti, David Bruce; Buckley, Donald Joseph, Jr.; Tyre, Earl Royce, Jr.; Keleher, Jason J.; Uriarte, Richard J.; Horkay, Ferenc (General Electric Company, USA). U.S. US 6258721 B1 20010710, 7 pp. (English). CODEN: USXXAM. APPLICATION: US 1999-472104 19991227.

AB The multistage process for the chem.-mech. **planarization** (CMP) of Cu commences with forming a primary aq. or **nonaq.** (e.g., using alcs. and ketones as **nonaq.** carriers) slurry from (i) between .apprx.0 and 7 wt.% of an oxidizer, (ii) between 0 and 7 wt.% of a chelating agent, (iii) between .apprx.0 and 5 wt.% of a surfactant, (iv) between .apprx.0.001 and 5 wt.% diamond particles having an av. particle size not substantially .gtorsim.0.4 .mu.m, and (v) an amt. of a pH adjustment agent so that the aq. slurry has a pH of between .apprx.3 and 10, and advantageously .apprx.5. The Cu of the **semiconductor wafer** then is subjected to CMP using the primary aq. slurry and then is subjected to a cleaning operation. Next, a secondary aq. slurry from (i) between .apprx.0 and 5 wt.% of an a hydroxylamine compd., (ii) between .apprx.0 and 7 wt.% of a chelating agent, (iii) between .apprx.0 and 5 wt.% of a surfactant, (iv) between .apprx.0.001 and 5 wt.% diamond particles having an av. particle size not substantially .gtorsim.0.4 .mu., and (v) an amt. of a pH adjustment agent so that the aq. slurry has a pH of between .apprx.4 and 10, and advantageously .apprx.8.5 pH. The **semiconductor wafer** then is subjected to CMP using said secondary aq. slurry. Thereafter, the **semiconductor wafer** again is subjected to a cleaning operation.

IC ICM H01L021-302

ICS H01L021-461

NCL 438693000

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 66

ST diamond slurry chem mech **polishing**

IT **Polishing**

(chem.-mech.; diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)

IT Slurries

(diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)

IT Carboxylic acids, uses

(dicarboxylic, aryl; in diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)

IT Chelating agents

Oxidizing agents

Surfactants

(in diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)

IT Alcohols, processes

- Ketones, processes  
(in diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)
- IT **Amines, uses**  
Amino acids, uses  
Polyoxyalkylenes, uses  
Sulfates, uses  
(in diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)
- IT 7782-40-3, Diamond, uses  
(diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)
- IT 7440-50-8, Copper, processes  
(diamond slurry for chem.-mech. **polishing** of **semiconductor wafers** with)
- IT 7440-25-7, Tantalum, uses  
(diamond slurry for chem.-mech. **polishing** of **semiconductor wafers** with)
- IT 1344-28-1, Alumina, processes 7803-49-8, Hydroxylamine, processes  
(in diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)
- IT 56-40-6, Glycine, uses 5470-11-1, Hydroxylamine hydrochloride  
7631-86-9, Silica, uses 7722-84-1, Hydrogen peroxide, uses  
9002-89-5, Polyvinylalcohol 9004-34-6, Cellulose, uses  
25322-68-3, Polyethylene oxide 69364-63-2, Arlasolve 200L  
(in diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)

L56 ANSWER 4 OF 24 HCA COPYRIGHT 2003 ACS

135:13072 Diamond slurry for chemical-mechanical **planarization** of **semiconductor wafers**. Li, Yuzhuo; Cerutti, David Bruce; Buckley, Donald Joseph, Jr.; Tyre, Earl Royce, Jr.; Keleher, Jason J.; Uriarte, Richard J.; Horkay, Ferenc (General Electric Company, USA). U.S. US 6242351 B1 20010605, 8 pp., Cont.-in-part of U.S. Ser. No. 472,104 (English). CODEN: USXXAM. APPLICATION: US 2000-591189 20000608. PRIORITY: US 1999-472104 19991227.

AB The multistage process for the chem.-mech. **planarization** (CMP) of Cu commences with forming a primary aq. or **nonaq.** (e.g., using alcs. and ketones as **nonaq.** carriers) slurry from (i) between .apprx.0 and 7 wt.% of an oxidizer, (ii) between 0-7 wt.% of .gtoreq.1 complexing agent or a passivating agent, (iii) between .apprx.0-5 wt.% of a surfactant, (iv) between .apprx.0.001-5 wt.% diamond particles having an av. particle size not substantially .gtorsim.0.4 .mu.m, and (v) an amt. of a pH adjustment agent so that the aq. slurry has a pH of between .apprx.3 and 10, and advantageously .apprx.5. The Cu of the **semiconductor wafer** then is subjected to CMP using the primary aq. slurry and then is subjected to a cleaning operation. Next, a secondary aq. slurry from (i) between .apprx.0-7 wt.% of one or more complexing agents or a passivating agent, (ii) between .apprx.0-5 wt.% of a surfactant, (iii) between

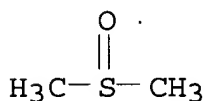
.apprx.0.001-5 wt.% diamond particles having an av. particle size not substantially .gtorsim.0.4 .mu.m, and (iv) an amt. of a pH adjustment agent so that the aq. slurry has a pH of between .apprx.4 and 10, and advantageously .apprx.8.5 pH. The **semiconductor wafer** then is subjected to **CMP** using the secondary aq. slurry. Thereafter, the **semiconductor wafer** again is subjected to a cleaning operation.

- IC ICM H01L021-302
- ICS H01L021-461
- NCL 438690000
- CC 76-3 (Electric Phenomena)
- ST diamond slurry chem mech **polishing semiconductor material**
- IT **Polishing**
  - (chem.-mech.; diamond slurry for chem.-mech. **planarization of semiconductor wafers**)
- IT Carboxylic acids, processes
  - (complexing agent; diamond slurry for chem.-mech. **planarization of semiconductor wafers**)
- IT **Amines, processes**
  - (diamines, complexing agent; diamond slurry for chem.-mech. **planarization of semiconductor wafers**)
- IT Abrasives
  - Semiconductor materials**
  - Slurries
  - Surfactants
    - (diamond slurry for chem.-mech. **planarization of semiconductor wafers**)
- IT **Amines, processes**
  - Glycols, processes
  - Humic acids
  - Iodides, processes
    - (hydroxyl radical quenching agent; diamond slurry for chem.-mech. **planarization of semiconductor wafers**)
- IT Heterocyclic compounds
  - (nitrogen, five-membered, passivating agent; diamond slurry for chem.-mech. **planarization of semiconductor wafers**)
- IT Polyoxyalkylenes, processes
  - Quaternary ammonium compounds, processes
  - Sulfates, processes
    - (surfactant; diamond slurry for chem.-mech. **planarization of semiconductor wafers**)
- IT **Amines, processes**
  - (triamines, complexing agent; diamond slurry for chem.-mech. **planarization of semiconductor wafers**)
- IT 67-63-0, 2-Propanol, processes 103-33-3, Azobenzene 592-57-4,



- 1,3-Cyclohexadiene 91825-55-7, Tin hydride  
(hydroxyl radical quenching agent; diamond slurry for chem.-mech.  
**planarization of semiconductor wafers**  
)
- IT 95-14-7, 1H-Benzotriazole  
(passivating agent; diamond slurry for chem.-mech.  
**planarization of semiconductor wafers**  
)
- IT 56-40-6, Glycine, processes 1344-28-1, Aluminum oxide (Al<sub>2</sub>O<sub>3</sub>),  
processes 7631-86-9, Silica, processes 7722-84-1, Hydrogen  
peroxide, processes 7782-40-3, Diamond, processes 69364-63-2  
(**polishing** slurry; diamond slurry for chem.-mech.  
**planarization of semiconductor wafers**  
)
- IT 9002-89-5, Polyvinyl alcohol 9004-34-6, Cellulose, processes  
25322-68-3, Polyethylene oxide  
(surfactant; diamond slurry for chem.-mech. **planarization**  
of **semiconductor wafers**)
- L56 ANSWER 5 OF 24 HCA COPYRIGHT 2003 ACS  
134:370677 Compositions for **polishing of semiconductor**  
**wafers** with **smooth** surface. Lee, Gil Sung; Kim,  
Suk Jin; Lee, Jae Suk; Chang, Doo Won (Cheil Hapsum Corp., Japan).  
Jpn. Kokai Tokkyo Koho JP 2001139935 A2 20010522, 7 pp. (Japanese).  
CODEN: JKXXAF. APPLICATION: JP 2000-233384 (20000801) PRIORITY: KR  
1999-50159 19991112.
- AB The compns. contain Al<sub>2</sub>O<sub>3</sub>/SiO<sub>2</sub>-based metal oxide fine powder,  
deionized water and additives.
- IT 67-68-5, DMSO, uses  
(additive; in compns. for **polishing of**  
**semiconductor wafers** with **smooth**  
surface)
- RN 67-68-5 HCA  
CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)

DMSO



- IT 7440-21-3, Silicon, properties  
(**semiconductor wafer**; compns. for  
**polishing of semiconductor wafers**  
with **smooth** surface)
- RN 7440-21-3 HCA  
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)
- Si
- IC ICM C09K003-14  
ICS C09K003-14; B24B037-00; C09K013-02; C09K013-04; C09K013-06;

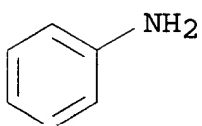
- H01L021-304
- CC 57-7 (Ceramics)  
Section cross-reference(s): 76
- ST **polishing** compn **semiconductor wafer**  
**smoothness**; alumina silica **polishing** compn
- IT **Polishing** materials  
**Semiconductor** materials  
(compns. for **polishing** of **semiconductor wafers** with **smooth** surface)
- IT 64-19-7, Acetic acid, uses 67-68-5, DMSO, uses 110-15-6, Succinic acid, uses 110-16-7, Maleic acid, uses 144-62-7, Oxalic acid, uses 877-24-7, Potassium hydrogen phthalate 1310-58-3, Potassium hydroxide, uses 1336-21-6, Ammonium hydroxide 7647-01-0, Hydrochloric acid, uses 7664-38-2, Phosphoric acid, uses 7664-39-3, Hydrofluoric acid, uses 7722-84-1, Hydrogen peroxide, uses 7758-05-6 7778-66-7, Potassium chloride oxide (KClO) 10588-01-9, Sodium chromate (Na<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>) 14013-86-6, Iron nitrate (Fe(NO<sub>3</sub>)<sub>2</sub>)  
(additive; in compns. for **polishing** of **semiconductor wafers** with **smooth** surface)
- IT 1306-38-3, Ceria, uses 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 13463-67-7, Titania, uses (compns. contg.; compns. for **polishing** of **semiconductor wafers** with **smooth** surface)
- IT **7440-21-3, Silicon**, properties 7440-32-6, Titanium, properties 7440-33-7, Tungsten, properties 7440-50-8, Copper, properties 12033-62-4, Tantalum nitride 12033-89-5, Silicon nitride, properties 25583-20-4, Titanium nitride  
(**semiconductor wafer**; compns. for **polishing** of **semiconductor wafers** with **smooth** surface)

X L56 ANSWER 6 OF 24 HCA COPYRIGHT 2003 ACS  
134:296791 Electroless surface polymerization of ordered conducting polyaniline films on **aniline**-primed substrates. Wu, C.-G.; Yeh, Y.-R.; Chen, J.-Y.; Chiou, Y.-H. (Department of Chemistry, National Central University, Chung, 32054, Taiwan). Polymer, 42(7), 2877-2885 (English) 2001. CODEN: POLMAG. ISSN: 0032-3861. Publisher: Elsevier Science Ltd..

AB Ordered conducting polyaniline films were obtained by electroless surface polymn. of **aniline** mols. on C<sub>6</sub>H<sub>5</sub>NHC<sub>3</sub>H<sub>6</sub>Si(OMe)<sub>3</sub>-modified substrates. Dense, **smooth** and strongly adhered films with thickness in the range of 50 nm to 1 .mu.m were isolated. The polymer films were in their conducting state and were homogeneously doped. Complete protonating/deprotonating of polyaniline films took only several seconds, and this process could be repeated several times without affecting the adhesion and cond. of the polymer films. IR, X-ray diffractometer and transmission electron microscopy data revealed the ordering of polyaniline chains, which have the domain size of a couple of hundred angstroms.

The room temp. cond. of the 1 .mu.m polyaniline film was 0.5 S/cm. These polymer films were very stable, their conductivities did not change even after staying in ambient atm. for 4 mo.

- IT 62-53-3, **Aniline**, processes  
 (electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)
- RN 62-53-3 HCA
- CN Benzenamine (9CI) (CA INDEX NAME)



- IT 7440-21-3, **Silicon**, uses  
 (**wafers, substrates**; electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)
- RN 7440-21-3 HCA
- CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

- CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 35, 42, 76
- ST electroless surface polymn ordered conducting polyaniline film;  
**aniline** primed substrate electroless surface polymn
- IT Conducting polymers  
 Doping  
 Glass substrates  
 IR spectra  
 Polymer morphology  
 Thermal conductivity  
 UV and visible spectra  
 (electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)
- IT Polyanilines  
 (electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)
- IT Coating process  
 (electroless; electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)
- IT Polymerization  
 (surface; electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)

- IT 62-53-3, **Aniline**, processes  
(electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)
- IT 25233-30-1P, **Aniline** homopolymer  
(electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)
- IT 7705-08-0, Ferric chloride, uses 7727-54-0, Ammonium persulfate (oxidant; electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)
- IT 67-56-1, Methanol, uses 67-64-1, Acetone, uses 75-05-8, Acetonitrile, uses 7732-18-5, Water, uses  
(solvent; electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)
- IT 7440-21-3, **Silicon**, uses  
(**wafers, substrates**; electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)

L56 ANSWER 7 OF 24 HCA COPYRIGHT 2003 ACS

134:185968 Photoresist remover composition. Baik, Ji-Hum; Oh, Chang-Il; Lee, Sang-Dai; Yoo, Chong-Soon (Dongjin Semichem Co., Ltd., S. Korea). PCT Int. Appl. WO 2001014934 A1 20010301, 20 pp.

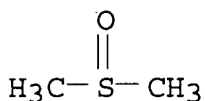
DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 2000-KR902 20000814. PRIORITY: KR 1999-34323 19990819.

AB The invention relates to a compn. for removing photoresist from a substrate during photolithog. of **semiconductor** devices fabrication and liq. crystal display devices. A photoresist remover compn. including: 10 to 30% by wt. amine compd.; 20 to 60% by wt. glycol series solvent; 20 to 60% by wt. polar solvent; and 0.01 to 3% by wt. perfluoroalkylethylene oxide. The performance of the photoresist remover compn. in stripping the photoresist residue, which is generated by dry or wet etching, ashing or ion implantation, from a substrate is enhance, and the photoresist remover compn. is able to be **smoothly** applied over a variety of metal layers including an Al layer. Also, the photoresist remover compn. corrodes the metal layers very little.

IT 67-68-5, **DMSO**, reactions 127-19-5,  
**Dimethylacetamide**  
(photoresist remover compn. contg.)

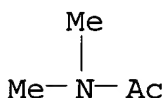
RN 67-68-5 HCA

CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



RN 127-19-5 HCA

CN Acetamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



IC ICM G03F007-32

ICS G03F007-42

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 76

IT **67-68-5, DMSO**, reactions 68-12-2, DMF, reactions  
78-96-6, Monoisopropanolamine 80-73-9 112-34-5, Diethylene glycol monobutyl ether **127-19-5, Dimethylacetamide**  
141-43-5, Monoethanolamine, reactions 872-50-4,  
N-Methylpyrrolidone, reactions 2687-94-7, N-Octylpyrrolidone  
2687-96-9, N-Dodecylpyrrolidone  
(photoresist remover compn. contg.)

L56 ANSWER 8 OF 24 HCA COPYRIGHT 2003 ACS

X 133:252826 Aromatic polyazomethines containing phenylquinoxaline rings.  
Bruma, Maria; Hamciuc, Elena; Mercer, Frank; Kopnick, Thomas;  
Schulz, Burkhard (Institute of Macromolecular Chemistry, Iasi, 6600,  
Rom.). High Performance Polymers, 12(2), 277-284 (English) 2000.  
CODEN: HPPOEX. ISSN: 0954-0083. Publisher: Institute of Physics  
Publishing.

AB New arom. polyazomethines have been synthesized by polycondensation  
of terephthalic dialdehyde with arom. diamines contg. preformed  
phenylquinoxaline rings. These polymers are easily sol. in polar  
aprotic solvents such as N-methylpyrrolidinone and  
**dimethylacetamide**, and even in less polar liqs. like THF and  
can be cast into thin flexible films or coatings from such solns.  
They show high thermal stability with the initial decompn. temp.  
being above 500.degree.C and glass transition temps. in the range  
240-292.degree.C. The very thin polymer coatings deposited by a  
spin-coating technique onto **silicon wafers** show  
a very **smooth**, pinhole-free surface in at. force  
microscopy investigations. The free-standing films of 20-30 .mu.m  
thickness show a low dielec. const., which is in the range  
3.25-3.56, which is promising for a future application as  
high-performance dielects.

CC 35-5 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 38

- X L56 ANSWER 9 OF 24 HCA COPYRIGHT 2003 ACS  
130:343448 Self-Assembly and Characterization of Fullerene Monolayers on **Si(100) Surfaces**. Feng, Wenju; Miller, Barry (Department of Chemistry, Case Western Reserve University, Cleveland, OH, 44106-7078, USA). Langmuir, 15(9), 3152-3156 (English) 1999. CODEN: LANGD5. ISSN: 0743-7463. Publisher: American Chemical Society.
- AB Self-assembly of C60 mols. on **planar** n- or p-type Si(100) has been accomplished by direct tethering onto the **Si surface** without using any intermediate functional hydrocarbon chain. Photoresponse has been obsd. on these monolayer modified electrodes in both aq. and nonaq. media. The p-type **Si(100) surface** with a bound C60 monolayer was also capable of mediating redox reactions. These C60 monolayer modified Si electrodes were very stable in both acidic aq. and **polar nonaq.** solvents. Characterization by fast atom bombardment mass spectroscopy (FAB-MS) suggests that simultaneous hydrosilylation and hydrogenation reactions accounted for the nature of the monolayer formation.
- IT **7440-21-3, Silicon, properties**  
(p-type, n-type; self-assembly and characterization by FAB-MS and CV of fullerene monolayers on n- and p-type **Si(100) surfaces**)
- RN 7440-21-3 HCA  
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)
- Si
- CC 66-4 (Surface Chemistry and Colloids)  
Section cross-reference(s): 67, 72, 73, 76
- IT Fast atom bombardment mass spectra  
(of fullerene monolayers on SiO2/Si(100), n-type and p-type **Si(100) substrates**)
- IT Hydrogenation  
Surface reaction  
(simultaneous hydrosilylation and hydrogenation reactions at **Si H-terminated surface** during formation of self-assembled monolayers of fullerene on n- and p-type **Si(100) wafers**)
- IT Hydrosilylation  
(simultaneous hydrosilylation and hydrogenation reactions at **Si H-terminated surface** during formation of self-f-assembled monolayers of fullerene on n- and p-type **Si(100) wafers**)
- IT Self-assembled monolayers  
(simultaneous hydrosilylation and hydrogenation reactions during formation of self-f-assembled monolayers of fullerene on n- and p-type **Si(100) surfaces**)
- IT **7440-21-3, Silicon, properties**  
(p-type, n-type; self-assembly and characterization by FAB-MS and

CV of fullerene monolayers on n- and p-type **Si(100) surfaces**)

IT 99685-96-8, [5,6] Fullerene-C60-Ih  
(self-assembly and characterization by FAB-MS and CV of fullerene monolayers on n- and p-type **Si(100) surfaces**)

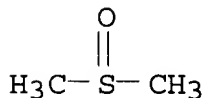
X L56 ANSWER 10 OF 24 HCA COPYRIGHT 2003 ACS  
130:101085 Measuring and interpreting contact angles: a complex issue.  
Kwok, D. Y.; Lam, C. N. C.; Li, A.; Leung, A.; Wu, R.; Mok, E.;  
Neumann, A. W. (Department of Mechanical Ind. Eng., University of  
Toronto, 5 King's College Road, Toronto, ON, M5S 3G8, Can.).  
Colloids and Surfaces, A: Physicochemical and Engineering Aspects,  
142(2-3), 219-235 (English) 1998. CODEN: CPEAEH. ISSN: 0927-7757.  
Publisher: Elsevier Science B.V..

AB Low-rate dynamic contact angles of 30 liqs. on a FC-725-coated  
**wafer** surface were measured by an automated axisym. drop  
shape anal.-profile (ADSA-P). Surprisingly, results indicate that  
FC-725 behaves differently in some respects from what one would  
expect for nonpolar surfaces: only nine liqs. yield essentially  
const. contact angles whereas the others show slip/stick contact  
angle behavior. In the worst case, the contact angle increases from  
.apprx.50 to 160.degree. at essentially const. three-phase contact  
radius. These angles should be disregarded for the interpretation  
in terms of surface energetics since there is no guarantee that  
Young's equation is applicable. If one employs a conventional  
goniometer-sessile drop technique, such contact angle behavior  
cannot be easily seen in all cases. The claim from van Oss et al.  
(1988) that liqs. with the same contact angles do not have the same  
surface tensions is misleading. If the meaningful contact angles  
are plotted as the liq.-vapor surface tension times cosine of the  
contact angle vs. the liq.-vapor surface tension, i.e.,  $\gamma_{lv} \cos \theta$  vs.  $\gamma_{lv}$ , a **smooth** curve emerges. Thus,  
intermol. forces (or surface tension components) do not have an  
addnl. and independent effect on the contact angles, in good  
agreement with the results from other studies on nonpolar and polar  
polymers.

IT 67-68-5, DMSO, properties  
(low-rate dynamic contact angles of 30 liqs. on a FC-725-coated  
**wafer** surface)

RN 67-68-5 HCA

CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



IT 7440-21-3, Silicon, uses  
(low-rate dynamic contact angles of 30 liqs. on a FC-725-coated  
**wafer** surface)

RN 7440-21-3 HCA

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

CC 66-4 (Surface Chemistry and Colloids)

IT Contact angle

Intermolecular force

Liquids

Surface tension

(low-rate dynamic contact angles of 30 liqs. on a FC-725-coated  
**wafer** surface)

IT 56-81-5, Glycerol, properties 67-68-5, DMSO, properties 68-12-2, N,N-Dimethylformamide, properties 71-41-0, 1-Pentanol, properties 75-11-6, Diiodomethane 75-12-7, Formamide, properties 75-52-5, Nitromethane, properties 79-27-6, 1,1,2,2-Tetrabromoethane 90-11-9, 1-Bromonaphthalene 90-14-2, 1-Iodonaphthalene 100-55-0, 3-Pyridylcarbinol 102-76-1, Triacetin 103-36-6, Ethyl cinnamate 103-49-1, Dibenzylamine 105-56-6, Ethyl cyanoacetate 111-46-6, Diethylene glycol, properties 111-48-8, 2,2'-Thiodiethanol 112-30-1, 1-Decanol 112-40-3, Dodecane 119-36-8, Methyl salicylate 124-18-5, Decane 141-43-5, Ethanolamine, properties 493-01-6, cis-Decalin 493-02-7, trans-Decalin 544-76-3, Hexadecane 627-31-6, 1,3-Diiodopropane 7732-18-5, Water, properties 10595-09-2, 3,3'-Thiodipropyl 19398-61-9, 2,5-Dichlorotoluene (low-rate dynamic contact angles of 30 liqs. on a FC-725-coated **wafer** surface)

IT 7440-21-3, Silicon, uses 99576-43-9, FC-725 (low-rate dynamic contact angles of 30 liqs. on a FC-725-coated **wafer** surface)

L56 ANSWER 11 OF 24 HCA COPYRIGHT 2003 ACS

129:116711 Method for chemical-mechanical **polish** (CMP) **planarizing** of copper-containing conductor layers.

Zhou, Mei Sheng; Ron-Fu, Chu (Chartered Semiconductor Manufacturing Ltd., Singapore). U.S. US 5780358 A 19980714, 10 pp. (English).

CODEN: USXXAM. APPLICATION: US 1996-630112 19960408.

AB A Chem.-Mech. **Polish** (CMP) **planarizing**method and a Chem.-Mech. **Polish** (CMP) slurrycompn. for Chem.-Mech. **Polish** (CMP)**planarizing** of copper metal and copper metal alloy layerswithin **integrated circuits**. There is firstprovided a **semiconductor** substrate having formed upon its

surface a patterned substrate layer. Formed within and upon the

patterned substrate layer is a blanket copper metal layer or a

blanket copper metal alloy layer. The blanket copper metal layer or

blanket copper metal alloy layer is then **planarized**through a Chem.-Mech. **Polish** (CMP)**planarizing** method employing a Chem.-Mech. **Polish**(CMP) slurry compn. The Chem.-Mech. **Polish** (CMP) slurry compn. comprises a **non-aq.**

coordinating solvent and a halogen radical producing specie.

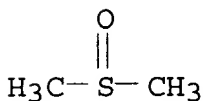
Useful



IT 67-68-5, Dimethylsulfoxide, uses  
 (slurry for chem.-mech. **polish (CMP)**  
**planarizing** of copper-contg. conductor layers contg.)

RN 67-68-5 HCA

CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



IC ICM H01L021-44

NCL 438645000

CC 76-3 (Electric Phenomena)

ST chem mech **polishing** conductor **integrated**  
**circuit; CMP** slurry **integrated**  
**circuit** conductor **planarization**

IT **Polishing**

(chem.-mech.; method for chem.-mech. **polish (**  
**CMP) planarizing** of copper-contg. conductor  
 layers)

IT Slurries

(for chem.-mech. **polish (CMP)**  
**planarizing** of copper-contg. conductor layers)

IT Electric conductors

**Integrated circuits**

**Semiconductor** device fabrication

(method for chem.-mech. **polish (CMP)**

**planarizing** of copper-contg. conductor layers)

IT Copper alloy

(method for chem.-mech. **polish (CMP)**

**planarizing** of copper-contg. conductor layers)

IT 7440-50-8, Copper, processes

(method for chem.-mech. **polish (CMP)**

**planarizing** of copper-contg. conductor layers)

IT 56-23-5, Carbon tetrachloride, uses 67-68-5,  
**Dimethylsulfoxide**, uses 75-05-8, Acetonitrile, uses  
 109-99-9, Tetrahydrofuran, uses 1344-28-1, Alumina, uses  
 7631-86-9, Silica, uses 13463-67-7, Titania, uses  
 (slurry for chem.-mech. **polish (CMP)**  
**planarizing** of copper-contg. conductor layers contg.)

X L56 ANSWER 12 OF 24 HCA COPYRIGHT 2003 ACS

128:251486 Removing residue from a **semiconductor wafer**  
 bonding pad. Peng, Tzu-min; Liaw, Yung-haw; Chu, Cheng-te; Huang,  
 Hsin-chieh (Taiwan Semiconductor Manufacturing Co., Ltd., Taiwan).  
 U.S. US 5731243 A 19980324, 9 pp. (English). CODEN: USXXAM.  
 APPLICATION: US 1995-523775 19950905.

AB A method for backside **grinding** a **semiconductor**

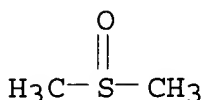
**wafer** and forming a contamination-free bonding pad

connection comprises forming a passivation layer over a metal layer.

A photoresist pattern is applied with an opening which defines a

bonding pad area and the passivation layer exposed in the opening is removed. Next, the photoresist is removed, but a polymer residue is often formed on the surfaces of the passivation layer surrounding the bonding pad. In a novel step, the residue is removed using an etchant contg. **DMSO** and monoethanolamine and is followed by an O plasma treatment. Next, the device side of the **wafer** is covered with a protective tape and the backside of the **wafer** is ground back. The tape is removed, revealing a contamination-free bonding pad area. A bonding connection is then made to the bonding pad.

IT 67-68-5, **DMSO**, processes  
 (etching by; in removing residue from a **semiconductor wafer** bonding pad)  
 RN 67-68-5 HCA  
 CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



IC ICM H01L021-28  
 ICS H01L021-304; H01L021-3065  
 NCL 438612000  
 CC 76-3 (Electric Phenomena)  
 ST residue removal **semiconductor wafer** bonding pad  
 IT Electric contacts  
 (bond pads; removing residue from a **semiconductor wafer** bonding pad)  
 IT Etching  
**Grinding** (machining)  
 (in removing residue from a **semiconductor wafer** bonding pad)  
 IT Plasma  
 (oxygen; in removing residue from a **semiconductor wafer** bonding pad)  
 IT Contamination (electronics)  
 (removing residue from a **semiconductor wafer** bonding pad)  
 IT Polymers, processes  
 (removing residue from a **semiconductor wafer** bonding pad)  
 IT Photoresists  
 (removing residue from a **semiconductor wafer** bonding pad after removal of)  
 IT **Semiconductor** device fabrication  
 (removing residue from a **semiconductor wafer** bonding pad in)  
 IT 67-68-5, **DMSO**, processes 141-43-5,  
 Monoethanolamine, processes  
 (etching by; in removing residue from a **semiconductor wafer** bonding pad)

IT 7631-86-9, Silica, processes 12033-89-5, Silicon nitride (Si<sub>3</sub>N<sub>4</sub>), processes

(passivation layer; in removing residue from a **semiconductor wafer** bonding pad)

IT 7782-44-7, Oxygen, processes  
(plasma; in removing residue from a **semiconductor wafer** bonding pad)

L56 ANSWER 13 OF 24 HCA COPYRIGHT 2003 ACS

X 125:169082 Aspects of the camphor-sulfonic acid processing route of polyaniline. Abell, L.; Pomfret, S. J.; Holland, E. R.; Adams, P. N.; Monkman, A. P. (Dep. Physics, Univ. Durham, UK). Annual Technical Conference - Society of Plastics Engineers, 54th(Vol. 2), 1417-1421 (English) 1996. CODEN: ACPED4. ISSN: 0272-5223. Publisher: Society of Plastics Engineers.

AB The microstructure and carrier transport properties of high-mol. wt. polyaniline films were studied as a function of camphor-sulfonic acid (CSA) dopant level. The polyaniline was prepd. in CSA / m-cresol soln. of **aniline** hydrochloride by treatment with ammonium persulfate at -25.degree., for 10 h, followed by purifn. to obtain bulk polyaniline-CSA of wt. av. mol. wt. of 174,000, no. av. mol. wt. of 21,000 Dalton, polydispersity of 8.3, and cond. of 100 S/cm. Stretch oriented polyaniline-CSA films were obtained by solvent casting on a **polished Si wafer**, producing a film with cond. 300 .+- . 30 S/cm. At a doping level of 30%, onset of metallic transport was obsd., and at 60% doping, films exhibit metallic transport, at room temp. and down to 135 K. The metallic conducting polymer also shows a large increase in crystallinity within the film. Stretch oriented pre-CSA doped films yielding increased room temp. cond. of 820 .+- . 40 S/cm at 100% elongation were also obtained.

CC 36-2 (Physical Properties of Synthetic High Polymers)  
Section cross-reference(s): 35, 76

IT Polyamines  
(**aniline**-based, microstructure and metallic cond. of stretch oriented high mol. wt. polyaniline-camphorsulfonate conducting polymer)

L56 ANSWER 14 OF 24 HCA COPYRIGHT 2003 ACS

X 124:304340 Manufacture of **semiconductor** devices. Noguchi, Juichi (Toshiba Chem Prod, Japan). Jpn. Kokai Tokkyo Koho JP 08031809 A2 19960202 Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-186775 19940715.

AB The manuf. comprises these steps; forming a polyamic acid resin film on a **wafer**, and removing its thick part selectively by applying an org. solvent to form a **flat** polyamic acid resin film. The manuf. provides a uniform-thickness polyimide film in a good through-putting rate preventing crack generation.

IT **7440-21-3**, Silicon, processes  
(polyamic resin film on **wafer** for **semiconductor** devices)

RN 7440-21-3 HCA

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

IT 127-19-5, Dimethylacetamide  
(polyamic resin film on wafer for semiconductor devices)

RN 127-19-5 HCA

CN Acetamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)

Me

Me-N-Ac

IC ICM H01L021-312

ICS H01L021-31

CC 76-3 (Electric Phenomena)

ST semiconductor device polyimide resin film

IT Etching  
(manuf. of semiconductor devices)

IT Polyamic acids  
(manuf. of semiconductor devices)

IT Polyimides, uses  
(manuf. of semiconductor devices)

IT Semiconductor devices  
(polyamic resin film on wafer for semiconductor devices)

IT 7440-21-3, Silicon, processes  
(polyamic resin film on wafer for semiconductor devices)

IT 176163-45-4P  
(polyamic resin film on wafer for semiconductor devices)

IT 67-56-1, Methanol, processes 68-12-2, N,N-Dimethylformamide,  
processes 127-19-5, Dimethylacetamide  
872-50-4, N-Methyl-2-pyrrolidone, processes  
(polyamic resin film on wafer for semiconductor devices)

L56 ANSWER 15 OF 24 HCA COPYRIGHT 2003 ACS

115:117775 Control of copper uptake in silicon wafers

need  
Copy during chemomechanical polishing of wafers in  
aqueous alkaline medium. Prigge, Helene; Gerlach, Peter; Hahn,  
Peter; Schnegg, Anton (Wacker-Chemitronic Gesellschaft fuer  
Elektronik-Grundstoffe m.b.H., Germany). Ger. Offen. DE 3939661 A1  
19910613, 5 pp. (German). CODEN: GWXXBX. APPLICATION: DE  
1989-3939661 19891130.

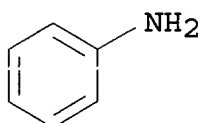
AB The Cu uptake in Si wafers is increased by the  
addn. of ligands which form planar Cu complexes, and the  
Cu uptake is decreased by the addn. of ligands which form

tetrahedral Cu complexes. The 1st complexing ligands are NH<sub>3</sub>, monoethylamine, diethylamine, triethylamine, monomethylamine, dimethylamine, trimethylamine, pyrrolidine, PhNH<sub>2</sub>, pyridine, and ethylenediamine. The 2nd complexing ligands are MeOH, EtOH, PrOH, BuOH, 1,2-propanediol, 1,2- or 2,3-butanediol, o-hydroquinone, and tartaric, lactic, or citric acid.

IT **62-53-3, Aniline**, uses and miscellaneous  
(complexing additive, for copper uptake control in chem.-mech.  
**polishing of silicon wafers**)

RN 62-53-3 HCA

CN Benzenamine (9CI) (CA INDEX NAME)



IT **7440-21-3, Silicon**, uses and miscellaneous  
(**polishing of wafers** of, chem.-mech., copper  
uptake control in, complexing additives for)

RN 7440-21-3 HCA

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

IC ICM H01L021-304

ICS C23C018-54

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 76

ST copper uptake control silicon **polishing**; ammonia copper  
uptake silicon **polishing**; amine copper uptake silicon  
**polishing**; pyrrolidine copper uptake silicon  
**polishing**; aniline copper uptake silicon  
**polishing**; pyridine copper uptake silicon **polishing**  
; alc copper uptake silicon **polishing**; diol copper uptake  
silicon **polishing**; hydroxycarboxylic acid copper uptake  
**polishing**

IT **Polishing**  
(chem.-mech., of **silicon wafers**, copper  
uptake control in, complexing additives for)

IT 50-21-5, Lactic acid, uses and miscellaneous 57-55-6,  
1,2-Propanediol, uses and miscellaneous **62-53-3**,  
**Aniline**, uses and miscellaneous 64-17-5, Ethanol, uses and  
miscellaneous 67-56-1, Methanol, uses and miscellaneous 71-23-8,  
Propanol, uses and miscellaneous 71-36-3, 1-Butanol, uses and  
miscellaneous 74-89-5, Monomethylamine, uses and miscellaneous  
75-04-7, Monoethylamine, uses and miscellaneous 75-50-3,  
Trimethylamine, uses and miscellaneous 77-92-9, Citric acid, uses  
and miscellaneous 87-69-4, Tartaric acid, uses and miscellaneous  
107-15-3, Ethylenediamine, uses and miscellaneous 109-89-7,

Diethylamine, uses and miscellaneous 110-86-1, Pyridine, uses and miscellaneous 120-80-9, o-Hydroquinone, uses and miscellaneous 121-44-8, Triethylamine, uses and miscellaneous 123-75-1, Pyrrolidine, uses and miscellaneous 124-40-3, Dimethylamine, uses and miscellaneous 513-85-9, 2,3-Butanediol 584-03-2, 1,2-Butanediol 7664-41-7, Ammonia, uses and miscellaneous (complexing additive, for copper uptake control in chem.-mech.

**polishing of silicon wafers)**

IT 7440-50-8P, Copper, preparation  
(control of uptake of, in chem.-mech. **polishing of silicon wafers**, complexing additives for)

IT 7440-21-3, Silicon, uses and miscellaneous  
(**polishing of wafers** of, chem.-mech., copper uptake control in, complexing additives for)

L56 ANSWER 16 OF 24 HCA COPYRIGHT 2003 ACS

X 113:180148 Reaction selectivity enhancement under periodic-current control: the reduction of nitrobenzene on the rotating **disk** electrode. Nolen, Timothy R.; Fedkiw, Peter S. (Dep. Chem. Eng., North Carolina State Univ., Raleigh, NC, 27695-7905, USA). Journal of the Electrochemical Society, 137(9), 2726-35 (English) 1990. CODEN: JESQAN. ISSN: 0013-4651.

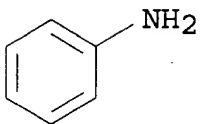
AB Kinetic rate equations for the redn. of nitrobenzene have been used with a math. model for mass transfer to a rotating **disk** electrode (RDE) to show how periodic current control can improve the selectivity for p-aminophenol compared to dc control at the same av. prodn. rate. The calcns., which assume pulse-current control and incorporate the effect of double layer charging, are compared to both dc and pulsed current expts. The calcns. predict that higher selectivity can be obtained using periodic control compared to dc control at the same product prodn. rate if the desired product is an intermediate (or derived therefrom) in a series of two electrochem. reactions and if the initial electrochem. reaction is more sensitive to potential than the second reaction. Specifically for the redn. of nitrobenzene, the intermediate is phenylhydroxylamine, from which p-aminophenol is derived by chem. reaction, and the second electrochem. reaction is its redn. to **aniline**. Low duty cycles and high frequencies for the current pulses (i.e., short, large current pulses sepd. by small currents) are most beneficial. In the model developed here, the limitation on the max. obtainable selectivity enhancement is due to double layer charging which **smooths** the Faradaic currents so that they approach the dc case at high frequencies and/or small duty cycles. In the RDE expts., the reaction nonuniformity at high instantaneous current densities limited the selectivity enhancement that could be exptl. measured and, in fact, the predicted enhancement was less than the reproducibility of the expts. However, in electrode geometries with a more uniform current distribution, e.g., a **planar** electrode with a large length-to-gap ratio, a larger improvement should be obtainable.

IT 62-53-3P, **Aniline**, preparation  
(formation of, in electrochem. redn. of nitrobenzene on rotating

**disk** electrode, selectivity enhancement under periodic current control in relation to)

RN 62-53-3 HCA

CN Benzenamine (9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)

Section cross-reference(s): 22, 65

ST redn electrochem nitrobenzene rotating **disk** electrode; electroredn nitrobenzene copper electrode; mass transport reaction selectivity redn; aminophenol **aniline** formation redn

IT Electric double layer

(charging of, in nitrobenzene redn. on rotating **disk** electrode, selectivity enhancement in relation to)

IT Mass transfer

(in electrochem. redn. of nitrobenzene on rotating **disk** electrode under periodic current control)

IT 62-53-3P, **Aniline**, preparation 59000-01-0P, p-Aminophenyl

(formation of, in electrochem. redn. of nitrobenzene on rotating **disk** electrode, selectivity enhancement under periodic current control in relation to)

IT 98-95-3, Nitrobenzene, reactions

(redn. of, electrochem., on rotating **disk** electrode, selectivity enhancement of)

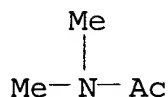
L56 ANSWER 17 OF 24 HCA COPYRIGHT 2003 ACS

X113:153305 Polyamic acid solutions as precursors for heat- and moisture-resistant polyimides. Mikogami, Yukikimi; Oba, Masayuki (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 02077468 A2 19900316 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-230959 19880914.

AB The title solns., with low rotational viscosity and useful as protective coatings and interlayer insulating materials for **semiconductor** devices, etc., comprise (A) polyamic acid solns. prepd. from tetracarboxylic dianhydrides, diamines, and dicarboxylic anhydrides or monoamines in AcNMe<sub>2</sub> or N-methyl-2-pyrrolidone (I) and (B) 5-60 parts (per 100 parts AcNMe<sub>2</sub> or I) ketones. Thus, a soln. of benzophenonetetracarboxylic dianhydride 78.681, pyromellitic dianhydride 17.993, and phthalic anhydride 0.997 g in I was treated with 62.102 g diaminodiphenyl ether and 4.920 g bis(.gamma.-aminopropyl)tetramethyldisiloxane at 2-8.degree. for 8 h to give 19.38% polyamic acid soln., 20 g of which was dild. with 4.6 g I and 5.2 g MEK to show rotational viscosity 1160 cP initially and 1120 cP after 45 days in dark at 0-5.degree., compared with initial viscosity of 1950 cP for the soln. prepd. without MEK. A **Si wafer** was spin

coated with the soln. and heated at 80-330.degree. to form a polyimide coating with good gloss and **smoothness**.

IT **127-19-5, N,N-Dimethylacetamide**  
 (solvents, for polyamic acids, with low rotational viscosity, ketones for)  
 RN 127-19-5 HCA  
 CN Acetamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



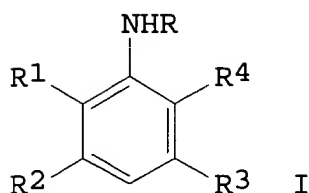
IC ICM C08L079-08  
 ICS C08K005-07; C08K005-20; C08K005-34; H01L021-312  
 CC 35-5 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 42, 76  
 ST polyimide coating **semiconductor** precursor; polyamic acid soln storage stability; elec insulator polyimide precursor; ketone solvent polyamic acid soln; rotational viscosity polyamic acid soln; acetamide solvent polyamic acid; methylpyrrolidone solvent polyamic acid  
 IT **Semiconductor** devices  
 (coatings and insulating layers for, polyimides as, polyamic acid solns. as precursors for, with low rotational viscosity)  
 IT Polyamic acids  
 (solns., in **dimethylacetamide** or methylpyrrolidone, with low rotational viscosity, ketones for)  
 IT Electric insulators and Dielectrics  
 (coatings, polyimides, precursors for, polyamic acid solns. as, with low rotational viscosity, for **semiconductor** devices)  
 IT Siloxanes and Silicones, compounds  
 (di-Me, aminopropyl group-contg., reaction products, with polyamic acids, solns. of, in **dimethylacetamide** or methylpyrrolidone, with low rotational viscosity, ketones for)  
 IT 85-44-9DP, 1,3-Isobenzofurandione, reaction products with polyamic acids 84329-58-8DP, reaction products with anhydrides or monoamines  
 (prepn. of, solns., in **dimethylacetamide** or methylpyrrolidone, with low rotational viscosity, ketones for)  
 IT **127-19-5, N,N-Dimethylacetamide** 872-50-4, uses and miscellaneous  
 (solvents, for polyamic acids, with low rotational viscosity, ketones for)

X L56 ANSWER 18 OF 24 HCA COPYRIGHT 2003 ACS  
 113:49946 Optical recording media using an oxidation-polymerization product of **aniline** derivatives. Yoshitake, Junichi; Yamanaka, Toru; Kuroiwa, Mitsuyuki (Mitsui Petrochemical Industries, Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 01283188 A2 19891114 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP



1988-114459 19880511.

GI



AB Optical recording media have, on a substrate, a recording layer contg. a polymer prepd. by oxidn. polymn. of **aniline** derivs. I (R, R1-4 = H, alkyl, alkoxy). The recording layer has high **smoothness** and the optical media exhibit high carrier to noise ratio in reading. Thus, 2,5-dimethoxyaniline was oxidn.-polymd., and a soln. of the polymer was spin-coated on a polyolefin **disk** substrate to give an optical **disk**. Signals were recorded and read by using a **semiconductor** laser (830 nm) to show high carrier to noise ratio in reading, and the **disk** exhibited good durability.

IC ICM B41M005-26

ICS C09K009-02

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 35

ST **aniline** oxidn polymn optical recording

IT Recording materials

(optical, using oxidn.-polymd. **aniline** derivs., with good sensitivity)

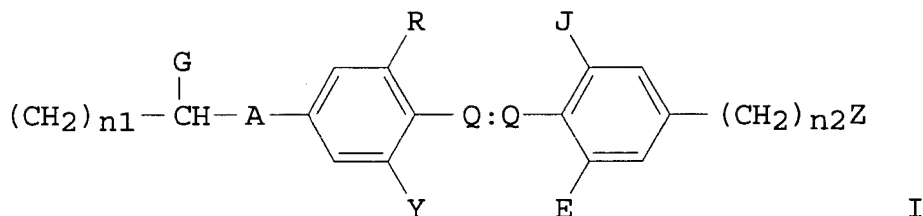
IT Polymerization

(oxidative, of **aniline** derivs., for optical recording materials)

L56 ANSWER 19 OF 24 HCA COPYRIGHT 2003 ACS

X111:196315 Preparation of aromatic substituted siloxanes and their use in optical apparatus. Carr, Neil; Goodwin, Martin John; Gray, George William; Scrowston, Richard Michael; Marsden, Richard; McRoberts, Andrew Martin; Toyne, Kenneth Johnson; Lacey, David (Plessey Co. PLC, UK). Brit. UK Pat. Appl. GB 2209169 A1 19890504, 35 pp. (English). CODEN: BAXXDU. APPLICATION: GB 1987-8261 19870407.

GI



- AB Trimethyl-terminated arom. substituted siloxanes having the formula  $\text{Me}_3\text{SiO}[\text{Me}_2\text{SiO}]\text{.hivin.l-}[\text{MeSi(X)O}]\text{.hivin.mSiMe}_3$  (.hivin.l = 1-99; .hivin.m = 99-1; X = I; Q = N or CH; G = H or Me; J = H, CN, or NO<sub>2</sub>; E = H, CN, or NO<sub>2</sub>; R = H, CN, NO<sub>2</sub> or Me; Y = H, CN, NO<sub>2</sub> or Me; A = CH<sub>2</sub>, O, NH, NMe, S, OCO, or CO<sub>2</sub>; Z = CN, CO<sub>2</sub>H, CO<sub>2</sub>Me, NO<sub>2</sub>, OH, OMe, OCOMe, NH<sub>2</sub>, NHMe, NMe<sub>2</sub>, NH(CH<sub>2</sub>)<sub>n2</sub>CO<sub>2</sub>H, NMe(CH<sub>2</sub>)<sub>n2</sub>CO<sub>2</sub>H, SH, SMe, or SO<sub>3</sub>H; n<sub>1</sub> = 0-18; and n<sub>2</sub> = 0-6) exhibit nonlinear optical properties and may be deposited as a Langmuir-Blodgett film. The film is useful in the manuf. of **planar** and channel waveguides. Thus, a mixt. of 4-(4-hydroxyphenylazo)benzonitrile, 4-bromo-1-butene, and anhyd. K<sub>2</sub>CO<sub>3</sub> in dry MeCOEt were refluxed for 24 h, cooled, filtered, and evapd. to give 4-(4-butene-3-oxyphenylazo)benzonitrile (II) in 66% yield. A soln. of II and di-Me, hydrogen Me siloxane in PhMe was refluxed under N in the presence of H<sub>2</sub>PtCl<sub>6</sub> in 2-propanol, mixed with 1-octene and worked up to give a compd. having m.p. 116.degree., IR<sub>vmax</sub> 2200 cm<sup>-1</sup>, and mass ion 253. The compd. was dissolved in a solvent and used in a Langmuir trough to form a multilayer deposit on common **substrates**, e.g., **Si wafers**, glass, or evapd. metals.
- IC ICM C08G077-40  
ICS C09K019-40
- CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 25, 42, 66, 73
- IT Alkylation  
(of arylazobenzonitrile and arylazobenzoate and **aniline** deriv.)
- IT Coupling reaction  
(of substituted **aniline** deriv., with methylaminobenzoate)
- IT Waveguides  
(optical, **planar**, arom.-substituted siloxanes with nonlinear optical properties for)
- IT 619-45-4, Methyl 4-aminobenzoate  
(coupling by, of substituted **aniline** deriv.)

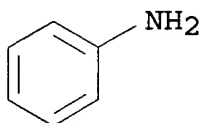
X L56 ANSWER 20 OF 24 HCA COPYRIGHT 2003 ACS  
110:218230 Air contaminants. (United States Occupational Safety and Health Administration, Washington, DC, 20210, USA). Federal Register, 54(12, Bk. 2), 2332-983 (English) 19 Jan 1989. CODEN: FEREAC. ISSN: 0097-6326.

AB Under the Federal Occupational Safety and Health act, OSHA is amending existing air containment stds. and setting new permissible exposure limits for toxic substances commonly used in the workplace.

IT 62-53-3, **Aniline**, biological studies  
 121-69-7, biological studies 127-19-5  
 7440-21-3, Silicon, biological studies  
 (air pollution by, occupational exposure to, stds. for, in USA)

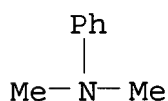
RN 62-53-3 HCA

CN Benzenamine (9CI) (CA INDEX NAME)



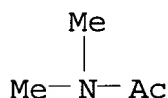
RN 121-69-7 HCA

CN Benzenamine, N,N-dimethyl- (9CI) (CA INDEX NAME)



RN 127-19-5 HCA

CN Acetamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



RN 7440-21-3 HCA

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

CC 59-5 (Air Pollution and Industrial Hygiene)  
 Section cross-reference(s): 4

IT **Polishing**  
 (dust from, air pollution by, occupational exposure to, stds. for, of USA)

IT 50-00-0, Formaldehyde, biological studies 50-29-3, biological studies 50-32-8, Benzo[a]pyrene, biological studies 50-78-2 53-96-3 54-11-5, Nicotine 55-38-9, Fenthion 55-63-0, Nitroglycerin 56-23-5, biological studies 56-38-2, Parathion 56-81-5, 1,2,3-Propanetriol, biological studies 57-14-7, 1,1-Dimethylhydrazine 57-24-9, Strychnine 57-50-1, biological studies 57-57-8, 2-Oxetanone 58-89-9, Lindane 60-11-7, 4-Dimethylaminoazobenzene 60-29-7, Ethyl ether, biological studies 60-34-4, Methyl hydrazine 60-57-1, Dieldrin 61-82-5, Amitrole

62-53-3, **Aniline**, biological studies 62-73-7,  
Dichlorvos 62-74-8, Sodium fluoroacetate 62-75-9,  
N-Nitrosodimethylamine 63-25-2 64-17-5, Ethyl alcohol,  
biological studies 64-18-6, Formic acid, biological studies  
64-19-7, Acetic acid, biological studies 67-56-1, Methyl alcohol,  
biological studies 67-63-0, Isopropyl alcohol, biological studies  
67-64-1, Acetone, biological studies 67-66-3, Chloroform,  
biological studies 67-72-1, Hexachloroethane 68-11-1,  
Thioglycolic acid, biological studies 68-12-2, Dimethylformamide,  
biological studies 71-23-8, n-Propyl alcohol, biological studies  
71-36-3, n-Butyl alcohol, biological studies 71-43-2, Benzene,  
biological studies 71-55-6, Methyl chloroform 72-20-8, Endrin  
72-43-5, Methoxychlor 74-83-9, Methyl bromide, biological studies  
74-87-3, Methyl chloride, biological studies 74-88-4, biological  
studies 74-89-5, Methylamine, biological studies 74-90-8,  
Hydrogen cyanide, biological studies 74-93-1, Methyl mercaptan,  
biological studies 74-96-4, Ethyl bromide 74-97-5,  
Chlorobromomethane 74-98-6, Propane, biological studies 74-99-7,  
Methyl acetylene 75-00-3, Ethyl chloride 75-01-4, biological  
studies 75-04-7, Ethylamine, biological studies 75-05-8,  
Acetonitrile, biological studies 75-07-0, Acetaldehyde, biological  
studies 75-08-1, Ethyl mercaptan 75-09-2, Methylene chloride,  
biological studies 75-12-7, Formamide, biological studies  
75-15-0, Carbon disulfide, biological studies 75-21-8, Oxirane,  
biological studies 75-25-2, Bromoform 75-31-0, Isopropylamine,  
biological studies 75-34-3, 1,1-Dichloroethane 75-35-4,  
Vinylidene chloride, biological studies 75-43-4,  
Dichloromonofluoromethane 75-44-5, Phosgene 75-45-6,  
Chlorodifluoromethane 75-47-8, Iodoform 75-50-3, Trimethylamine,  
biological studies 75-52-5, Nitromethane, biological studies  
75-55-8 75-56-9, biological studies 75-61-6,  
Difluorodibromomethane 75-63-8, Trifluorobromomethane 75-65-0,  
tert-Butyl alcohol, biological studies 75-69-4,  
Fluorotrichloromethane 75-71-8, Dichlorodifluoromethane 75-74-1,  
Tetramethyl lead 75-99-0, 2,2-Dichloropropionic acid 76-03-9,  
Trichloroacetic acid, biological studies 76-06-2, Chloropicrin  
76-11-9, 1,1,1,2-Tetrachloro-2,2-difluoroethane 76-12-0,  
1,1,2,2-Tetrachloro-1,2-difluoroethane 76-13-1,  
1,1,2-Trichloro-1,2,2-trifluoroethane 76-15-3,  
Chloropentafluoroethane 76-22-2, Camphor 76-44-8 77-47-4,  
Hexachlorocyclopentadiene 77-73-6, Dicyclopentadiene 77-78-1,  
Dimethyl sulfate 78-00-2, Tetraethyl lead 78-30-8 78-34-2,  
Dioxathion 78-59-1, Isophorone 78-83-1, Isobutyl alcohol,  
biological studies 78-87-5, Propylene dichloride 78-92-2,  
sec-Butyl alcohol 78-93-3, 2-Butanone, biological studies  
79-00-5, 1,1,2-Trichloroethane 79-01-6, biological studies  
79-04-9, Chloroacetyl chloride 79-06-1, 2-Propenamide, biological  
studies 79-09-4, Propionic acid, biological studies 79-10-7,  
2-Propenoic acid, biological studies 79-20-9, Methyl acetate  
79-24-3, Nitroethane 79-27-6, Acetylene tetrabromide 79-34-5,  
1,1,2,2,-Tetrachloroethane 79-41-4, biological studies 79-46-9,  
2-Nitropropane 80-62-6 81-81-2, Warfarin 83-26-1, Pindone

83-79-4, Rotenone 84-66-2, Diethyl phthalate 84-74-2, Dibutyl phthalate 85-00-7 85-44-9, Phthalic anhydride 86-50-0, Azinphos-methyl 87-68-3, Hexachlorobutadiene 87-86-5, Pentachlorophenol 88-72-2, o-Nitrotoluene 88-89-1, Picric acid 89-72-5, o-sec-Butylphenol 90-04-0, o-Anisidine 91-20-3, Naphthalene, biological studies 91-59-8, .beta.-Naphthylamine 91-94-1, 3,3'-Dichlorobenzidine 92-52-4, Diphenyl, biological studies 92-67-1, 4-Aminodiphenyl 92-84-2, Phenothiazine 92-87-5, Benzidine 92-93-3, 4-Nitrodiphenyl 93-76-5 94-36-0, Benzoyl peroxide, biological studies 94-75-7, biological studies 95-13-6, Indene 95-47-6, biological studies 95-48-7, 2-Methyl phenol, biological studies 95-49-8, o-Chlorotoluene 95-50-1, o-Dichlorobenzene 95-53-4, o-Toluidine, biological studies 96-12-8, 1,2-Dibromo-3-chloropropane 96-18-4, 1,2,3-Trichloropropane 96-22-0, Diethyl ketone 96-33-3 96-69-5, 4,4'-Thiobis(6-tert-butyl-m-cresol) 97-77-8, Disulfiram 98-00-0, Furfuryl alcohol 98-01-1, Furfural, biological studies 98-51-1, p-tert-Butyltoluene 98-82-8, Cumene 98-83-9, biological studies 98-95-3, Nitrobenzene, biological studies 99-08-1, m-Nitrotoluene 99-65-0, 1,3-Dinitrobenzene 99-99-0, p-Nitrotoluene 100-00-5, p-Nitrochlorobenzene 100-01-6, biological studies 100-25-4 100-37-8 100-41-4, Ethyl benzene, biological studies 100-42-5, biological studies 100-44-7, Benzyl chloride, biological studies 100-61-8, biological studies 100-63-0 100-74-3, N-Ethylmorpholine 101-14-4, 4,4'-Methylene bis(2-chloroaniline) 101-68-8 101-84-8, Phenyl ether 102-54-5, Dicyclopentadienyl iron 102-81-8 104-94-9, p-Anisidine 105-46-4, sec-Butyl acetate 105-60-2, biological studies 106-35-4, 3-Heptanone 106-42-3, p-Xylene, biological studies 106-44-5, 4-Methylphenol, biological studies 106-46-7, p-Dichlorobenzene 106-49-0, p-Toluidine, biological studies 106-50-3, p-Phenylene diamine, biological studies 106-51-4, 2,5-Cyclohexadiene-1,4-dione, biological studies 106-68-3, Ethyl amyl ketone 106-87-6 106-89-8, Epichlorohydrin, biological studies 106-92-3, Allyl glycidyl ether 106-93-4, Ethylene dibromide 106-97-8, Butane, biological studies 106-99-0, 1,3-Butadiene, biological studies 107-02-8, Acrolein, biological studies 107-05-1, Allyl chloride 107-06-2, Ethylene dichloride, biological studies 107-07-3, Ethylene chlorohydrin, biological studies 107-13-1, Acrylonitrile, biological studies 107-15-3, 1,2-Ethanediamine, biological studies 107-18-6, Allyl alcohol, biological studies 107-19-7, Propargyl alcohol 107-20-0, Chloroacetaldehyde 107-21-1, 1,2-Ethanediol, biological studies 107-30-2, Chloromethyl methyl ether 107-31-3, Methyl formate 107-41-5, Hexylene glycol 107-49-3, TEPP 107-66-4, Dibutyl phosphate 107-87-9, 2-Pentanone 108-03-2, 1-Nitropropane 108-05-4, Vinyl acetate, biological studies 108-10-1, Hexone 108-11-2, Methyl isobutyl carbinol 108-18-9, Diisopropylamine 108-20-3, Isopropyl ether 108-21-4, Isopropyl acetate 108-24-7, Acetic anhydride 108-31-6, 2,5-Furandione, biological studies 108-38-3, m-Xylene, biological studies 108-39-4, 3-Methylphenol, biological studies 108-44-1, m-Toluidine, biological studies 108-46-3, Resorcinol, biological

studies 108-83-8, Diisobutyl ketone 108-84-9 108-87-2,  
 Methylcyclohexane 108-88-3, biological studies 108-90-7,  
 Chlorobenzene, biological studies 108-91-8, Cyclohexanamine,  
 biological studies 108-93-0, Cyclohexanol, biological studies  
 108-94-1, Cyclohexanone, biological studies 108-95-2, Phenol,  
 biological studies 108-98-5, Phenyl mercaptan, biological studies  
 109-59-1, 2-Isopropoxyethanol 109-60-4, n-Propyl acetate  
 109-66-0, Pentane, biological studies 109-73-9, Butylamine,  
 biological studies 109-79-5, Butyl mercaptan 109-86-4, Methyl  
 cellosolve 109-87-5, Methylal 109-89-7, Diethylamine, biological  
 studies 109-94-4, Ethyl formate 109-99-9, Tetrahydrofuran,  
 biological studies 110-12-3, Methyl isoamyl ketone  
 (air pollution by, occupational exposure to, stds. for, in USA)  
 IT 110-19-0, Isobutyl acetate 110-43-0, Methyl-n-amyl ketone  
 110-49-6 110-54-3, n-Hexane, biological studies 110-62-3,  
 n-Valeraldehyde 110-80-5, 2-Ethoxyethanol 110-82-7, Cyclohexane,  
 biological studies 110-83-8, Cyclohexene, biological studies  
 110-86-1, Pyridine, biological studies 110-91-8, Morpholine,  
 biological studies 111-15-9, 2-Ethoxyethyl acetate 111-30-8,  
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 111-76-2, 2-Butoxyethanol 111-84-2, Nonane 114-26-1, Propoxur  
 115-29-7, Endosulfan 115-77-5, Pentaerythritol, biological studies  
 115-86-6, Triphenyl phosphate 115-90-2, Fensulfothion 117-81-7  
 118-52-5, 1,3-Dichloro-5,5-dimethyl hydantoin 118-96-7,  
 2,4,6-Trinitrotoluene 120-80-9, Catechol, biological studies  
 120-82-1, 1,2,4-Trichlorobenzene 121-44-8, Triethylamine,  
 biological studies 121-45-9, Trimethyl phosphite 121-69-7  
 , biological studies 121-75-5, Malathion 121-82-4, Cyclonite  
 122-39-4, Diphenylamine, biological studies 122-60-1, Phenyl  
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 123-51-3, Isoamyl alcohol 123-73-9 123-86-4, n-Butyl-acetate  
 123-91-1, 1,4-Dioxane, biological studies 123-92-2, Isoamyl  
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 Dimethylamine, biological studies 126-73-8, Tributyl phosphate,  
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 .beta.-Chloroprene 127-18-4, Perchloroethylene, biological studies  
 127-19-5 128-37-0, 2,6-Di-tert-butyl-p-cresol, biological  
 studies 131-11-3, Dimethylphthalate 133-06-2, Captan 134-32-7,  
 1-Naphthalenamine 136-78-7, Sesone 137-05-3, Methyl  
 2-cyanoacrylate 137-26-8, Thiram 138-22-7, n-Butyl lactate  
 140-88-5 141-32-2 141-43-5, biological studies 141-66-2,  
 Dicrotophos 141-78-6, Ethyl acetate, biological studies  
 141-79-7, Mesityl oxide 142-64-3, Piperazine dihydrochloride  
 142-82-5, Heptane, biological studies 144-62-7, Ethanedioic acid,  
 biological studies 148-01-6 150-76-5, 4-Methoxyphenol  
 151-56-4, Aziridine, biological studies 156-62-7, Calcium  
 cyanamide 218-01-9, Chrysene 287-92-3, Cyclopentane 298-00-0,  
 Methyl parathion 298-02-2, Phorate 298-04-4, Disulfoton  
 299-84-3, Ronnel 299-86-5, Crufomate 300-76-5,  
 Dimethyl-1,2-dibromo-2,2-dichloroethyl phosphate 302-01-2,

Hydrazine, biological studies 309-00-2, Aldrin 314-40-9,  
Bromacil 330-54-1, Diuron 333-41-5, Diazinon 334-88-3,  
Diazomethane 353-50-4, Carbonyl fluoride 409-21-2, Silicon  
carbide, biological studies 420-04-2, Cyanamide 463-51-4, Ketene  
471-34-1, Carbonic acid calcium salt (1:1), biological studies  
479-45-8, Tetryl 504-29-0, 2-Aminopyridine 506-77-4, Cyanogen  
chloride 509-14-8, Tetranitromethane 528-29-0,  
1,2-Dinitrobenzene 532-27-4 534-52-1, Dinitro-o-cresol  
540-59-0, 1,2-Dichloroethylene 540-88-5, tert-Butyl acetate  
542-75-6, 1,3-Dichloropropene 542-88-1, Bis(Chloromethyl) ether  
542-92-7, Cyclopentadiene, biological studies 552-30-7 556-52-5,  
Glycidol 557-05-1, Zinc stearate 558-13-4, Carbon tetrabromide  
563-12-2, Ethion 563-80-4, Methyl isopropyl ketone 583-60-8  
584-84-9 591-78-6, 2-Hexanone 593-60-2, Vinyl bromide  
594-42-3, Perchloromethyl mercaptan 594-72-9, 1,1-Dichloro-1-  
nitroethane 600-25-9, 1-Chloro-1-nitropropane 603-34-9,  
Triphenyl amine 624-83-9, Methyl isocyanate 626-17-5,  
1,3-Benzenedicarbonitrile 627-13-4, n-Propyl nitrate 628-63-7,  
n-Amyl acetate 628-96-6, Ethylene glycol dinitrate 630-08-0,  
Carbon monoxide, biological studies 638-21-1, Phenylphosphine  
681-84-5, Methyl silicate 684-16-2, Hexafluoroacetone 768-52-5,  
N-Isopropylaniline 944-22-9, Fonofos 999-61-1, 2-Hydroxypropyl  
acrylate 1189-85-1, tert-Butyl chromate 1300-73-8, Xylidine  
1303-96-4, Borax decahydrate 1305-62-0, Calcium hydroxide,  
biological studies 1305-78-8, Calcium oxide, biological studies  
1309-37-1, Iron oxide, biological studies 1309-48-4, Magnesium  
oxide, biological studies 1310-58-3, Potassium hydroxide,  
biological studies 1310-73-2, Sodium hydroxide, biological studies  
1314-13-2, Zinc oxide, biological studies 1314-62-1, Vanadium  
pentoxide, biological studies 1314-80-3, Phosphorus pentasulfide  
1319-77-3, Cresol 1320-37-2, Dichlorotetrafluoroethane  
1320-67-8, Propylene glycol monomethyl ether 1321-64-8,  
Pentachloronaphthalene 1321-65-9, Trichloronaphthalene  
1321-74-0, Divinyl benzene, biological studies 1330-43-4,  
Anhydrous borax 1332-29-2, Tin oxide 1335-87-1,  
Hexachloronaphthalene 1335-88-2, Tetrachloronaphthalene  
1344-28-1, .alpha.-Alumina, biological studies 1344-95-2, Calcium  
silicate 1477-55-0, 1,3-Benzenedimethanamine 1563-66-2,  
Carbofuran 1912-24-9 1929-82-4, 2-Chloro-6-trichloromethyl  
pyridine 2039-87-4, o-Chlorostyrene 2074-87-5, Cyanogen  
2104-64-5 2179-59-1, Allyl propyl disulfide 2234-13-1,  
Octachloronaphthalene 2238-07-5, Diglycidyl ether 2425-06-1,  
Captafol 2426-08-6 2551-62-4, Sulfur hexafluoride 2698-41-1,  
o-Chlorobenzylidene malonitrile 2699-79-8, Sulfuryl fluoride  
2921-88-2, Chlorpyrifos 2971-90-6, Clopidol 3333-52-6,  
Tetramethyl succinonitrile 3383-96-8, Temephos 3394-04-5  
3689-24-5, Sulfotep 4016-14-2, Isopropyl glycidyl ether  
4098-71-9, Isophorone diisocyanate 4170-30-3, Crotonaldehyde  
4685-14-7 5124-30-1 6423-43-4, Propylene glycol dinitrate  
6923-22-4, Monocrotophos 7429-90-5, Aluminum, biological studies  
7429-90-5D, Aluminum, compds. 7439-89-6, Iron, biological studies  
7439-89-6D, Iron, salts 7439-92-1, Lead, biological studies

7439-96-5, Manganese, biological studies 7439-96-5D, Manganese, compds. 7439-97-6, Mercury, biological studies 7439-97-6D, Mercury, compds. 7439-98-7, Molybdenum, biological studies 7439-98-7D, Molybdenum, compds. 7440-02-0, Nickel, biological studies 7440-02-0D, Nickel, compds. 7440-06-4, Platinum, biological studies 7440-06-4D, Platinum, salts 7440-16-6, Rhodium, biological studies 7440-16-6D, Rhodium, compds. **7440-21-3**, Silicon, biological studies 7440-22-4, Silver, biological studies 7440-25-7, Tantalum, biological studies 7440-28-0D, Thallium, compds. 7440-31-5, Tin, biological studies 7440-31-5D, Tin, compds. 7440-33-7, Tungsten, biological studies 7440-33-7D, Tungsten, compds. 7440-36-0, Antimony, biological studies 7440-38-2D, Arsenic, inorg. and org. compds. 7440-39-3D, Barium, compds. 7440-41-7, Beryllium, biological studies 7440-41-7D, Beryllium, compds. 7440-43-9, Cadmium, biological studies 7440-47-3, Chromium, biological studies 7440-47-3D, Chromium, compds. 7440-48-4, Cobalt, biological studies 7440-50-8, Copper, biological studies 7440-58-6, Hafnium, biological studies 7440-61-1, Uranium, biological studies 7440-61-1D, Uranium, compds. 7440-62-2, Vanadium, biological studies 7440-65-5, Yttrium, biological studies 7440-67-7D, Zirconium, compds. 7440-74-6, Indium, biological studies 7440-74-6D, Indium, compds. 7446-09-5, Sulfur dioxide, biological studies 7553-56-2, Iodine, biological studies 7572-29-4, Dichloroacetylene 7580-67-8, Lithium hydride 7616-94-6, Perchloryl fluoride 7631-86-9, Silica, biological studies 7631-90-5, Sodium bisulfite 7637-07-2, Boron trifluoride, biological studies 7646-85-7, Zinc chloride, biological studies 7647-01-0, Hydrogen chloride, biological studies 7664-38-2, Phosphoric acid, biological studies 7664-39-3, Hydrogen fluoride, biological studies 7664-41-7, Ammonia, biological studies 7664-93-9, Sulfuric acid, biological studies 7681-57-4, Sodium metabisulfite 7697-37-2, Nitric acid, biological studies 7719-09-7, Thionyl chloride 7719-12-2, Phosphorus trichloride (air pollution by, occupational exposure to, stds. for, in USA)

L56 ANSWER 21 OF 24 HCA COPYRIGHT 2003 ACS

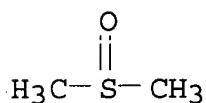
X103:217042 High-temperature films and coating solutions for use in the manufacture of **semiconductor integrated circuits**. Cordes, William Frederick, III; Jeffries, Alfred T., III (Hunt, Philip A., Chemical Corp., USA). Eur. Pat. Appl. EP 146811 A2 19850703, 29 pp. DESIGNATED STATES: R: BE, DE, FR, GB, IT. (English). CODEN: EPXXDW. APPLICATION: EP 1984-114417 19841128. PRIORITY: US 1983-556022 19831129.

AB A coating soln. for use in forming **planar**, heat-resistant dielec. films having a low mobile ion content and good polymg. properties. comprises a soln. of an uncured poly(imidazopyrrolone-imide) in a polar org. solvent. The soln. may also contain an org. diluent. Films formed from the polymer are useful in multilayer **semiconductor integrated circuits** wherein adjacent conductor layers are sepd. by a passivating layer of the film. Thus, a soln. of 4,4'-oxydianiline and

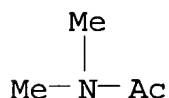


3,3',4,4'-tetraaminobiphenyl in 1-methyl-2-pyrrolidinone (I) [872-50-4] was treated with 3,3',4,4'-benzophenonetetracarboxylic dianhydride soln. in I to give a product having a viscosity of 0.7 Pa-s. A sample of the reaction mixt. was dild. to 11% solids, filtered to 5.0 .mu., and used to flood precoated (with an adhesion promoter) **Si wafers**. The **wafers** were baked at 125-140.degree. for 30 min and 300.degree. for 60 min to give cured films 0.82-0.95 .mu. thick.

IT 67-68-5, uses and miscellaneous 127-19-5  
(solvents, for polyimidazopyrrolone-polyimide coatings)  
RN 67-68-5 HCA  
CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



RN 127-19-5 HCA  
CN Acetamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



IC ICM C08G073-20  
ICS H01L023-30; H01B003-30  
CC 42-10 (Coatings, Inks, and Related Products)  
Section cross-reference(s): 76  
ST polyimidazopyrrolone polyimide coating **integrated circuit**; dielec film polyimidazopyrrolone polyimide; heat resistance polyimidazopyrrolone polyimide; aminobiphenyl copolymer coating **integrated circuit**;  
benzophenonecarboxylic anhydride copolymer coating; oxydianiline copolymer, coating **integrated circuit**;  
methylpyrrolidinone solvent polyimidazopyrrolone polyimide  
IT Heat-resistant materials  
(polyimidazopyrrolone-polyimide films, for **semiconductor integrated circuits**)  
IT Electric insulators and Dielectrics  
(coatings, polyimidazopyrrolone-polyimide, for **semiconductor integrated circuits**, heat-resistant)  
IT Electric **circuits**  
(**integrated**, MOS, elec. insulating coating films for, from polyimidazopyrrolone-polyimides, heat-resistant)  
IT 26376-56-7 99278-75-8  
(coatings, elec. insulating, for **semiconductor integrated circuits**, heat-resistant)  
IT 67-68-5, uses and miscellaneous 68-12-2, uses and miscellaneous 127-19-5 872-50-4, uses and miscellaneous

(solvents, for polyimidazopyrrolone-polyimide coatings)

LS6 ANSWER 22 OF 24 HCA COPYRIGHT 2003 ACS

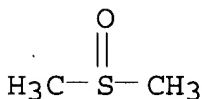
103:79285 Ultraviolet stabilizers of the 2-hydroxyphenylbenzotriazole class - influence of the solvent on the absorption spectra and photochemical deactivation mechanism. Woessner, Gottfried; Goeller, Gernot; Rieker, Jochen; Hoier, Helga; Stezowski, John J.; Daltrozso, Ewald; Neureiter, Manfred; Kramer, Horst E. A. (Inst. Phys. Chem., Univ. Stuttgart, Stuttgart, D-7000/80, Fed. Rep. Ger.). Journal of Physical Chemistry, 89(17), 3629-36 (English) 1985. CODEN: JPCHAX. ISSN: 0022-3654.

AB The intramol. H bond is the origin of the rapid radiationless deactivation of TIN (2-(2'-hydroxy-5'-methylphenyl)benzotriazole) widely used as an UV stabilizer (TIN(intra)) for polymers. The equil. between TIN(intra) and the TIN mol. with an intermol. H bond to solvent mols. TIN(inter) in the ground state is mainly detd. by steric factors and by the H-acceptor ability of the solvent. The S1 state of TIN(inter) (.tau.F = 0.4 ns in Me2SO, 296 K) is longer lived than the proton-transferred state S1' of TIN(intra) and is deactivated by IC and ISC (.PHI.ISC = 0.15 in Me2SO, 296 K), the comparatively high triplet yield giving rise to degrdn. reactions of either the TIN mol. itself or of the polymer. Emission and emission excitation spectra showed that methyltinuvin (MT) can be considered as a model compd. for TIN(inter). An x-ray crystal structure detn. revealed MT to be distorted (the dihedral angles between benzotriazole and p-cresol rings are 54.9 and 56.3.degree., resp. (two types of MT mols.)), whereas TIN itself is **planar** in the pure cryst. state. As a model compd. for coplanar TIN the conformationally fixed deriv. of the diphenylboryl chelate was synthesized.

IT 67-68-5, properties 127-19-5  
(solvent effect of, on spectral properties of  
hydroxyphenylbenzotriazole UV stabilizer)

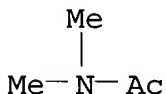
RN 67-68-5 HCA

CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



RN 127-19-5 HCA

CN Acetamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 60-29-7, properties 67-68-5, properties 75-05-8,

properties 84-74-2 100-76-5 109-99-9, properties 110-86-1,  
 properties 121-44-8, properties 127-19-5 142-82-5,  
 properties  
 (solvent effect of, on spectral properties of  
 hydroxyphenylbenzotriazole UV stabilizer)

L56 ANSWER 23 OF 24 HCA COPYRIGHT 2003 ACS

102:195221 Applying a poly(methacrylic anhydride) resist to a  
 X **semiconductor**. Brault, Robert G. (Hughes Aircraft Co. ,  
 USA). U.S. US 4508812 A 19850402, 3 pp. (English). CODEN:  
 USXXAM. APPLICATION: US 1984-606506 19840503.

AB A method of pretreating a **semiconductor wafer** is  
 described so that a soln. coating of a pos. resist of  
 poly(methacrylic anhydride) (I) can be directly applied to the  
 treated surface. In the method a **Si wafer** is  
 1st precoated with a thin layer of poly(tert-Bu methacrylate) (II)  
 and then heated to convert the II to the anhydride. The thickness  
 of this anhydride-precursor layer is .1torsim.1000 .ANG.. Next, a  
 soln. of I dissolved in a solvent that is capable of wetting the  
 precursor layer is applied to the treated **wafer** and then  
 the solvent evapd. to give a I layer having a thickness of  
 .apprx.2000-20,000 .ANG.. Thus, a **Si wafer**  
 (thickness of 10-15 mils and diam. 2 in.) was 1st precoated with a  
 2% soln. of II in PhMe to give a 250-300 .ANG. thick layer which was  
 then heated at 215.degree. for 1 h to give an anhydride layer of  
 .apprx.250 .ANG. thickness. A 5.3 wt.% soln. of I in  
 N-methylpyrrolidone was then spin-coated thereon to give a  
**smooth** resist layer.

IT **7440-21-3**, uses and miscellaneous  
 (coating of, with poly(methacrylic anhydride) electron-beam  
 resist, pretreatment with poly(tert-Bu methacrylate) in relation  
 to)

RN 7440-21-3 HCA

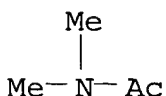
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

IT **127-19-5**  
 (electron-beam resists contg. poly(methacrylic anhydride) and,  
 coating of, on **semiconductor** supports, pretreatment  
 with poly(tert-Bu methacrylate) in relation to)

RN 127-19-5 HCA

CN Acetamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



IC ICM H01L021-316

NCL 430270000

- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST polymethacrylic anhydride electron resist coating; silicon support electron resist coating; **semiconductor** support electron resist coating; polybutyl methacrylate coating **semiconductor** support; methacrylic anhydride polymer electron resist; butyl methacrylate polymer coating **semiconductor**
- IT **7440-21-3**, uses and miscellaneous  
(coating of, with poly(methacrylic anhydride) electron-beam resist, pretreatment with poly(tert-Bu methacrylate) in relation to)
- IT 25189-00-8  
(coatings, on **semiconductor** supports, heat-treated, for improved application of poly(methacrylic anhydride) electron-beam resist)
- IT 25300-99-6  
(electron-beam resist, coating of, on **semiconductor** supports, poly(tert-Bu methacrylate) pretreatment in relation to)
- IT 68-12-2, uses and miscellaneous **127-19-5** 872-50-4, uses and miscellaneous  
(electron-beam resists contg. poly(methacrylic anhydride) and, coating of, on **semiconductor** supports, pretreatment with poly(tert-Bu methacrylate) in relation to)

L56 ANSWER 24 OF 24 HCA COPYRIGHT 2003 ACS

81:70135 Encapsulated solid state electronic devices having a sealed lead-encapsulant interface. Szedon, John R.; Jackson, John A.; Phillips, David C. (Westinghouse Electric Corp.). U.S. US 3821099 19740628, 10 pp. (English). CODEN: USXXAM. APPLICATION: US 1972-245416 19720419.

AB A **smooth**, flexible, pinhole-free film, e.g. a 0.5-5-mil-thick polyimide resin film, is electrodeposited, preferably from a **nonaq.** compn., onto the device connection leads. The film provides an adherable surface for the encapsulating plastic. The coatings are deposited at c.ds. of 2-10 mA/in.<sup>2</sup> and pH 8-10 from colloidal or noncolloidal **nonaq.** compns. of polyamic acid salts with amines, and imidized by a heat source to cure and convert them to polyimides. The polyamic acids are prepd. by mixing a suitable arom. tetracarboxylic dianhydride or tricarboxylic anhydride with an arom. diamine. The salt-forming amines include org. tertiary aliph. and arom. amines, e.g. amines and imidazoles. The components must be present in crit. wt. percent ratios for suitable viscosities, and prevention of pptn. The colloidal compn. comprises .apprx.1 polyamic acid, .apprx.0.8-1.2 N-contg. compd., .apprx.29-37 **nonaq.** non-electrolyzable org. solvent for the acid, and .apprx.50-150 parts by wt. **nonaq.** nonelectrolyzable org. solvent for the salt, e.g. a ketone. The noncolloidal compn. comprises .apprx.1 polyamic acid, .apprx.0.8-1.5 N-contg. compd., .apprx.12.5-15 solvent for the acid, and .apprx.7-9 parts by wt. solvent for the salt. For example 8.7 g polyamide acid polymer dissolved in 44.3 g solvent was mixed with 219 g **dimethyl sulfoxide**. An amine salt was

produced by adding 7.3 g Et<sub>3</sub>N dropwise. The soln. was stirred vigorously and heated to .apprx.50.degree. for .apprx.15 min. The soln. was then slowly added to 629 g Me<sub>2</sub>CO, to produce a colloidal compn. to be used for the coating process. Because of the nature of charged polymer-salt particles, bare metal areas are coated in preference to slightly coated regions. The product film is very uniform in thickness.

IC B01K; C23B  
NCL 204181000  
CC 71-13 (Electric Phenomena)  
Section cross-reference(s): 42  
ST polyimide coating conductive lead; potting epoxy polyimide coating;  
**semiconductor** polyimide coating encapsulation  
IT Carboxylic acids, compounds  
(amine salts with polyamic, in coating of elec. conducted leads  
in **semiconductor** devices with polyimides)  
IT **Semiconductor** devices  
(coating of conductive leads in, with polyimides, for improved  
potting)  
IT Polyimides  
(coating with, of elec. conductive leads in **semiconductor**  
devices)  
IT Polyamides, uses and miscellaneous  
(in coating of elec. conductive leads in **semiconductor**  
devices with polyimides)  
IT Electric conductors  
(in **semiconductor** devices, coating of, with polyimides)  
IT Coating process  
(of elec. conductive leads in **semiconductor** devices  
with polyimides)  
IT Potting  
(of **semiconductor** devices, coating of conductive leads  
with polyimides in)  
IT Epoxy resins  
(potting with, of **semiconductor** devices, coating of  
conductive leads with polyimides in relation to)  
IT Ethanamine, N,N-diethyl-, salts with polyamic acids  
(in coating of elec. conducted leads in **semiconductor**  
devices with polyimides)

=> d 157 1-10 cbib abs hitstr hitind

L57 ANSWER 1 OF 10 HCA COPYRIGHT 2003 ACS

135:156634 **Polishing** pad composition for **polishing**  
of **semiconductor wafers**. Hasegawa, Toru; Ogawa,  
Toshihiro; Kurihara, Fumio (JSR Co., Ltd., Japan). Jpn. Kokai  
Tokkyo Koho JP 2001214154 A2 20010807, 6 pp. (Japanese). CODEN:  
JKXXAF. APPLICATION: JP 2000-333460 20001031. PRIORITY: JP  
1999-334688 19991125.

AB The compns. contain an aq. substance and abrasives in a **non**  
-aq. substance. Preferably, at least part of the

abrasives are dispersed in the aq. substance, and the abrasives have an. size 0.01-100 .mu.m.

- IC ICM C09K003-14
- ICS C09K003-14; B24B037-00; B24D011-00; C08K003-00; C08L101-00; H01L021-304
- CC 57-7 (Ceramics)
- Section cross-reference(s): 76
- ST **polishing pad compn semiconductor wafer**  
; aq substance abrasive **polishing pad**
- IT Polyesters, uses  
(elastomer; in **polishing pad compn. for polishing of semiconductor wafers**)
- IT Polyurethanes, uses  
(in **polishing pad compn. for polishing of semiconductor wafers**)
- IT **Polishing materials**  
**Semiconductor materials**  
(**polishing pad compn. for polishing of semiconductor wafers**)
- IT 1306-38-3, Cerium oxide, uses 1313-13-9, Manganese dioxide, uses  
(abrasive; in **polishing pad compn. for polishing of semiconductor wafers**)
- IT 9002-89-5, Polyvinyl alcohol 12619-70-4, Cyclodextrin  
(aq. substance; in **polishing pad compn. for polishing of semiconductor wafers**)
- IT 9003-17-2, polybutadiene 9003-56-9, ABS resin  
(in **polishing pad compn. for polishing of semiconductor wafers**)

L57 ANSWER 2 OF 10 HCA COPYRIGHT 2003 ACS

7132:123755 Thermoplastic resin compositions and abrasive pads thereof.  
Hasegawa, Akira; Nakanishi, Hideo; Kobayashi, Yutaka; Kawamura, Tomoo; Ogawa, Toshihiro (JSR Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000034416 A2 20000202, 6 pp. (Japanese). CODEN: JKXXAF.  
APPLICATION: JP 1999-126842 19990507. PRIORITY: JP 1998-133527 19980515.

- AB The abrasive pads, esp. suitable for **polishing semiconductor wafer** surfaces, comprise compns. composed of **nonwater-sol.** thermoplastic resins with Shore D hardness .gtoreq.35% and contg. 5-60 vol.% water-sol. substances with av. particle diam. 0.1-500 .mu.m. Thus, a compn. contg. 80 vol.% ethylene-vinyl alc. copolymer (Eval G 110) and 20 vol.% PVA (Poval CP 1000) was molded and pressed to give sheets having Shore D hardness 86, av. particle diam. of PVA 2 .mu.m, **Si wafer polishing** speed 0.6 .mu.m/min, and good **smoothness** of the **polished wafer**.
- IC ICM C08L101-00
- ICS B24B037-00; C08J005-14; C08K003-24
- CC 38-3 (Plastics Fabrication and Uses)
- ST **semiconductor wafer polishing**  
polymeric abrasive pad; water sol thermoplastic abrasive pad; ethylene vinyl alc copolymer abrasive pad; PVA EVA abrasive pad

**wafer polishing**

L57 ANSWER 3 OF 10 HCA COPYRIGHT 2003 ACS

129:128191 Exploratory studies of the carbon/**nonaqueous**

X electrolyte interface by electrochemical and in situ ellipsometry measurements. Kong, F.; Kim, J.; Song, X.; Inaba, M.; Kinoshita, K.; McLaren, F. (Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory, Berkeley, CA, 94720, USA). Electrochemical and Solid-State Letters, 1(1), 39-41 (English) 1998. CODEN: ESLEF6. ISSN: 1099-0062. Publisher: Electrochemical Society.

AB An electrochem. cell was fabricated and used for in situ ellipsometry studies of the carbon/electrolyte interface during potential cycling in **nonaq.** electrolytes. The initial studies were conducted on **smooth** carbon films obtained by pyrolysis of a pos. photoresist on a **Si wafer** at 1000.degree.. The potential of the carbon film in 1 M LiPF6 + ethylene carbonate-dimethyl carbonate was scanned from open circuit (3.0 V) to 0 V (vs. Li), and the ellipsometry parameters .DELTA. and .psi. were recorded. Detectable changes in the ellipsometry parameters occurred at potentials near 1.5 V, where a large cathodic current was obsd. These changes were attributed to the formation of a solid electrolyte interface (SEI) layer. Subsequent potential scans between 3.0 and 0 V showed no significant change in the ellipsometry parameters or the current-potential profiles, indicative of an SEI layer which remained unchanged. XPS measurements indicated that Li and F were the major elements present in the SEI layer on the carbon surface. Preliminary anal. of the ellipsometry data using a single-layer effective medium approxn. model indicated that the SEI layer was 4 nm thick.

IT **7440-21-3**, Silicon, uses  
(formation of carbon film by pyrolysis of pos. photoresist on)  
RN **7440-21-3** HCA  
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

CC 72-2 (Electrochemistry)

Section cross-reference(s): 52, 66, 73, 78

ST carbon **nonaq** electrolyte interface electrochem  
ellipsometry

IT Electrode-electrolyte interface  
(electrochem. measurements and in situ ellipsometry of interface  
of carbon/**nonaq.** electrolyte contg. LiPF6)

IT Solid electrolytes  
(electrochem. measurements and in situ ellipsometry of solid  
electrolyte interface layer on carbon in **nonaq.**  
electrolyte contg. LiPF6)

IT Electrochemical cells  
(for in situ ellipsometry studies of carbon/electrolyte interface  
during potential cycling in **nonaq.** electrolyte)

- IT Positive photoresists  
(formation of carbon film on **silicon wafer** by  
pyrolysis of)
- IT Thermal decomposition  
(formation of carbon film on **silicon wafer** by  
pyrolysis of pos. photoresist)
- IT Cyclic voltammetry  
Ellipsometry  
(in study of carbon/**nonaq.** electrolyte interface)
- IT Diffusion  
(of Li<sup>+</sup> ions in carbon from **nonaq.** electrolyte contg.  
LiPF<sub>6</sub>)
- IT Films  
(of carbon obtained by pyrolysis of pos. photoresist on  
**Si wafer** for electrochem. and in situ  
ellipsometry of solid electrolyte interface layer on carbon in  
**nonaq.** electrolyte)
- IT Reduction, electrochemical  
(of **nonaq.** electrolyte contg. LiPF<sub>6</sub> during cycling in  
electrochem. cell)
- IT 7439-93-2, Lithium, properties  
(electrochem. intercalation of lithium into carbon in  
**nonaq.** electrochem. cell)
- IT 7440-44-0, Carbon, uses  
(electrochem. measurements and in situ ellipsometry of carbon/  
**nonaq.** electrolyte interface)
- IT 7789-24-4, Lithium fluoride, properties  
(formation in solid electrolyte layer on carbon during potential  
cycling in **nonaq.** electrolyte contg. LiPF<sub>6</sub>)
- IT **7440-21-3**, Silicon, uses  
(formation of carbon film by pyrolysis of pos. photoresist on)

L57 ANSWER 4 OF 10 HCA COPYRIGHT 2003 ACS

126:125743 Slurry for **polishing** interlayer electric insulator  
film in **semiconductor** device. Muroyama, Masakazu (Sony  
Corp, Japan). Jpn. Kokai Tokkyo Koho (JP 08330262) A2 19961213  
Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP  
1995-133584 19950531.

AB The slurry for **planarization** of interlayer elec. insulator  
film in **semiconductor** device consists of a water-sol.  
inorg. fine particle dispersed in a **nonaq.** medium. The  
particle may be .gtoreq.1 selected from metal carbonate, sulfate,  
nitrate, ammonium salt, halide, perchlorate, silicate, borate,  
phosphate, and arsenite. A **semiconductor** device is  
manufd. by a process including **polishing** an interlayer  
step-covering film comprising (fluorinated) polyimides, PTFE,  
(polycarbonate-)siloxanes, fluorinated silicate salts, porous  
polymers, and/or parilenes. The slurry shows prevention of  
scratching on the insulator film and the particle is completely  
removed by washing by water.

IC ICM H01L021-304  
ICS H01L021-304; B24B037-00; C09K003-14



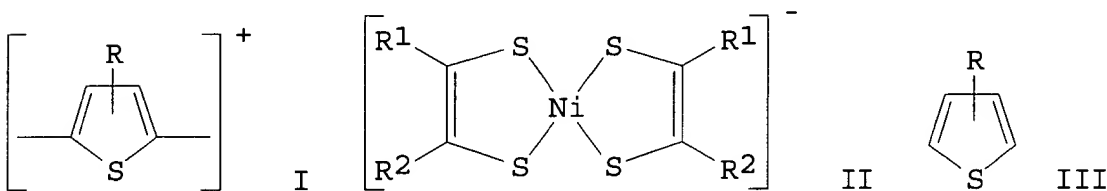
- CC 76-3 (Electric Phenomena)  
Section cross-reference(s): 38, 57
- ST slurry **polishing semiconductor wafer**;  
interlayer elec insulator polymer **polishing**; water sol  
particle **polishing** slurry; **planarization**  
interlayer film **polishing** slurry; metal salt dispersion  
slurry **polishing**
- IT Group VA element compounds  
(arsenites, metal, particles; slurry of water-sol. particle  
dispersion in **nonaq.** medium for **polishing**  
interlayer polymer film in **semiconductor** device)
- IT Fluoropolymers, miscellaneous  
Polyimides, miscellaneous  
Polysiloxanes, miscellaneous  
(elec. insulator, interlayer film; slurry of water-sol. particle  
dispersion in **nonaq.** medium for **polishing**  
interlayer polymer film in **semiconductor** device)
- IT Borates  
Carbonates, uses  
Perchlorates  
Phosphates, uses  
Silicates, uses  
Sulfates, uses  
(metal, particles; slurry of water-sol. particle dispersion in  
**nonaq.** medium for **polishing** interlayer polymer  
film in **semiconductor** device)
- IT Polysiloxanes, miscellaneous  
Polysiloxanes, miscellaneous  
(polycarbonate-, elec. insulator, interlayer film; slurry of  
water-sol. particle dispersion in **nonaq.** medium for  
**polishing** interlayer polymer film in  
**semiconductor** device)
- IT Polycarbonates, miscellaneous  
Polycarbonates, miscellaneous  
(polysiloxane-, elec. insulator, interlayer film; slurry of  
water-sol. particle dispersion in **nonaq.** medium for  
**polishing** interlayer polymer film in  
**semiconductor** device)
- IT Electric insulators  
**Polishing**  
**Semiconductor** devices  
Slurries  
(slurry of water-sol. particle dispersion in **nonaq.**  
medium for **polishing** interlayer polymer film in  
**semiconductor** device)
- IT 9002-84-0, PTFE  
(elec. insulator, interlayer film; slurry of water-sol. particle  
dispersion in **nonaq.** medium for **polishing**  
interlayer polymer film in **semiconductor** device)
- IT 67-56-1, Methanol, uses 67-63-0, Isopropyl alcohol, uses  
(medium; slurry of water-sol. particle dispersion in  
**nonaq.** medium for **polishing** interlayer polymer

film in **semiconductor** device)  
 IT 471-34-1, Calcium carbonate, uses 10043-01-3, Aluminum sulfate (particles; slurry of water-sol. particle dispersion in **nonaq.** medium for **polishing** interlayer polymer film in **semiconductor** device)

L57 ANSWER 5 OF 10 HCA COPYRIGHT 2003 ACS

116:49021 Optical recording media, and manufacture method. Komori, Tetsuo (Dainippon Printing Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 03208689 A2 19910911 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-5466 19900112.

GI



AB The recording layer of the media consists of polythiophenes I (R = alkyl) doped with dithiolatonickel complexes II (R1-2 = alkyl, cyano, alkoxyaryl). The manuf. method involves electrolytic polymn. of **nonaq.** electrolyte contg. thiophenes III and complexes II. The layer absorbs in wavelength range of **semiconductor** laser (750-950 nm), has **smooth** surface, is stable, and is prepd. by simple and well-controlled procedure. Thus, a soln. of 2.1 g 3-nonylthiophene and 0.535 g bis(1,2-dicyano ethylene-1,2-dithiolato)nickel in 60 mL MeCN was electrolyzed and polymer was deposited on In/Sn oxide electrode, to form a dark brown layer with cond. 10<sup>-3</sup>-10<sup>-1</sup> S/cm absorbing in 860-nm region.

IC ICM B41M005-26

ICS G11B007-24; G11B007-26

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST optical recording **disk** doped polythiophene; nickel complex doped recording layer

L57 ANSWER 6 OF 10 HCA COPYRIGHT 2003 ACS

111:49597 Infrared-compatible deposition surface for effluents from liquid chromatographs. Biemann, Klaus; Gagel, John J. (Massachusetts Institute of Technology, USA). U.S. US 4823009 A 19890418, 17 pp. Cont.-in-part of U.S. Ser. No. 877,242. (English). CODEN: USXXAM. APPLICATION: US 1987-87427 19870820. PRIORITY: US 1986-851445 19860414; US 1986-877242 19860623.

AB Effluent from a liq. chromatograph (LC) is deposited onto a deposition medium having a deposition surface inert to the LC effluent elevated above and parallel to a **planar** IR reflective front surface, preferably driven so as to define a

continuous sample track in a generally circular, spiral or raster pattern. In the preferred embodiment, the deposition medium is a plate of Ge inert to aq. and **nonaq.** solvents, thicker than the longest IR wavelength of interest and having an undercoating. of Al. Effluent is preferably deposited in a spiral pattern on the deposition medium in the form of a rotating **disk**. After collection, the reflection spectra can be interrogated by Fourier transform IR spectroscopy. The same collection technique can be used to collect and mount samples for mass spectrometry. To promote solvent evapn., the effluent discharge is enveloped by a stream of heated N, particularly beneficial for reversed-phase chromatog. By varying the temp. of the stream as a function of the proportions of solvents of differing volatility, the compatibility of gradient elution with surface deposition techniques is improved.

IC ICM G01N021-01  
ICS G01N001-28; G01N001-10  
NCL 250341000  
CC 79-2 (Inorganic Analytical Chemistry)  
IT **Semiconductor** materials  
(IR-compatible deposition surface contg., for effluents from liq. chromatographs)

L57 ANSWER 7 OF 10 HCA COPYRIGHT 2003 ACS

X03:96406 Positive photoresists containing preformed polyglutarimide polymer. Gleim, Robert D.; DeGrandpre, Mark P. (Rohm and Haas Co., USA). U.S. US 4524121 A 19850618, 12 pp. (English). CODEN: USXXAM. APPLICATION: US 1983-553221 19831121.

AB A photoresist system which provides pos. images, has high degree of thermal stability and is also suitable as a **planarizing** layer in a multilayer resist contains a partially aq. sol. imidized acrylic polymer (polyglutarimide) dissolved in a **non**-reactive **non-aq.** solvent. Thus, a soln. contg. 10 wt.% of polyglutarimide which contained 58 mol% NH3-derived N-H glutarimide units and 42 mol% amine-derived N-Me glutarimide units (obtained by reacting PMMA with NH3 at 560.degree.) in a solvent mixt. consisting of chlorobenzene and methoxyethanol (66/33 wt. ratio) and contg. 4',2',3'-trihydroxybenzophenone ester of 1-oxodiazonaphthalene-5-sulfonic acid as a sensitizer was coated on a Si oxide-contg. **Si wafer** (primed with hexamethyl disilazane), prebaked, imagewise exposed to UV, developed in an aq. base developer, rinsed with H2O and dried to give an image with excellent adhesion and resolu.

IC ICM G03C001-54  
ICS G03C001-68; G03C005-00  
NCL 430176000  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
IT Resists  
(photo-, multilayer, imidized acrylic polymer for application as **planarizing** layer in)  
IT Resists  
(photo-, pos.-working, imidized acrylic polymer dissolved in

- nonreactive **non-aq.** solvent as, for high thermal stability)
- IT 7664-41-7D, reaction products with poly(Me methacrylate)  
9011-14-7D, reaction product with ammonia  
(photoresist system providing pos. images contg. **non**-reactive **non-aq.** solvent and, thermal stability of)
- IT 75578-78-8 97900-86-2  
(sensitizer, for photoresist system consisting of imidized acrylic polymer and **non**-reactive **non-aq.** solvent, formation of pos. thermally stable images by)

L57 ANSWER 8 OF 10 HCA COPYRIGHT 2003 ACS

36:76388 Photoelectrochemical studies of a molybdenum disulfide (MoS<sub>2</sub>) electrode by the rotating ring-**disk** electrode technique. Fujishima, Akira; Noguchi, Yoshikazu; Honda, Kenichi; Loo, Boon H. (Fac. Eng., Univ. Tokyo, Tokyo, 113, Japan). Bulletin of the Chemical Society of Japan, 55(1), 17-22 (English) 1982. CODEN: BCSJA8. ISSN: 0009-2673.

AB Photoelectrochem. processes at both n- and p-type MoS<sub>2</sub> electrodes were studied by rotating ring-**disk** electrode technique. In comparison with other **semiconductor** photoelectrodes, such as CdS, ZnO, and TiO<sub>2</sub>, the competitive oxidns. of various reducing agents at the n-MoS<sub>2</sub> electrode were not clearly dependent on their redox potentials. The MoS<sub>2</sub> photoanode was particularly stabilized in I- solns., and this result was attributed to the specific adsorption of I- on the electrode surface. Two-step waves were obsd. in the photocurrent-potential curves of the MoS<sub>2</sub> photoanode in I- solns. The 1st wave was controlled by the diffusion of I- from the bulk soln. to the electrode surface, and the 2nd wave at a more anodic potential was dependent on the formation of the photogenerated holes.

CC 72-2 (Electrochemistry)

Section cross-reference(s): 66, 74, 76

IT Electric potential

(**flat** band, of molybdenum sulfide in sodium sulfate solns.)

IT Photoconductivity and Photoconduction

(of molybdenum sulfide electrode, in aq. and **nonaq.** solns., effect of additives on)

IT 7757-82-6, properties

(elec. **flat** band potential of molybdenum sulfide in soln. of)

IT 1317-33-5, uses and miscellaneous

(electrodes, photoelectrochem. n- and p-type, rotating ring-**disk** electrode technique in study of)

L57 ANSWER 9 OF 10 HCA COPYRIGHT 2003 ACS

31:114496 Metallic reducing additive for solid cathodes used in **nonaqueous** batteries. Kronenberg, Marvin Lee (Union Carbide Corp., USA). Ger. Offen. DE 2848962 19790531, 24 pp. (German).

CODEN: GWXXBX. APPLICATION: DE 1978-2848962 19781111.

- AB In a **nonaq.** battery for **transistorized** devices, the cathode contains a larger amt. of graphite and/or C and a smaller amt. of a metallic reducing agent (incorporated throughout the cathode) which is sufficient to reduce any materials in the battery which are more cathodic than the active cathode material, and of course with respect to the anode. The metallic reducing agent is a discrete material which is in elec. and ionic contact with the cathode and is selected from Zn (preferably), V, Mn, Cr, Fe, Cd, In, Sn, Pb, Zr, Ti, Li, Na, K, Mg, Al, and Ca. The active cathode material is chosen from CFx, V2O5, WO3, MoO3, Pb oxide, Co oxide, MnO2, Cu oxide, CuS, CoS2, In sulfide, Fe sulfide, NiS, Ag2CrO4, Ag3PO4, and CuSO4. The anode is chosen from Li, Na, K, Ca, Mg and their alloys. The electrolyte is an org. solvent or mixt. of org. solvents. For example, a **planar** battery, with a metal cap for closure, contains a **disk-shaped** Li anode, an FeS2 cathode and electrolyte of LiCF3SO3 soln. in dioxolane 40, dimethoxyethane 30, and 3-methyl-2-oxazolidone 30% with a trace of dimethylisoxazole. The cathode collector consists of a Ni grid and the separator of nonwoven polypropylene. In the case of a drain of 1.2 mA, the battery showed a voltage of 1.8 V. Within 15 min, the outlet voltage fell to .apprx.1.4 V and stayed there upon further discharge. The addn. of Zn powder (as reducing agent) and C black to the FeS2 improved the qualities of the battery.
- IC H01M004-62; H01M004-58; H01M006-16
- CC 72-2 (Electrochemistry)
- IT Carbon black, uses and miscellaneous  
(in primary **nonaq.** battery with metal reducing additive)
- IT Reducing agents  
(metals, for cathodes in primary **nonaq.** batteries)
- IT Batteries, primary  
(**nonaq.**, for **transistorized** devices, metallic reducing additive for use in)
- IT Cathodes  
(battery, metal reducing additives for, in **nonaq.** electrolytes)
- IT 7439-93-2, uses and miscellaneous  
(anode, for **nonaq.** battery)
- IT 9002-84-0  
(binder, in primary **nonaq.** battery)
- IT 7440-02-0, uses and miscellaneous  
(cathode collector, for primary **nonaq.** battery)
- IT 1317-38-0, uses and miscellaneous  
(cathode, for primary **nonaq.** battery)
- IT 12068-85-8  
(cathode, with metal reducing additive, for **nonaq.** battery)
- IT 110-71-4 300-87-8 646-06-0 19836-78-3  
(in primary **nonaq.** battery)
- IT 7440-44-0, uses and miscellaneous 7782-42-5, uses and miscellaneous

- (in primary **nonaq.** battery, with metal reducing additive)
- IT 7439-89-6, uses and miscellaneous 7440-31-5, uses and miscellaneous  
(reducing additive, for primary **nonaq.** battery)
- IT 7440-66-6, uses and miscellaneous  
(reducing agent, for solid cathode in primary **nonaq.** battery)
- IT 9003-07-0  
(separator, for primary **nonaq.** battery)
- IT 12597-69-2, uses and miscellaneous  
(wool, in primary **nonaq.** battery)
- L57 ANSWER 10 OF 10 HCA COPYRIGHT 2003 ACS  
89:69540 Chemical pretreatment and electrical behavior of **silicon surfaces**. Vieweg-Gutberlet, F. G.; Siegesleitner, P. F. (Mater. Charact. Sect., Wacker-Chemitronic G.m.b.H., Burghausen, Fed. Rep. Ger.). Proceedings - Electrochemical Society, 77-2(Semicond. Silicon), 387-92 (English) 1977. CODEN: PESODO. ISSN: 0161-6374.
- AB Chem. pretreatment of p-type **Si wafers** prior to elec. measurements often results in unreliable readings of resistivity or carrier concn. For some treatments such as HF or alk. slurry **polish**, a thin layer of neg. ions is formed on the **Si surface**, trapping holes from the bulk of the sample. **Polishing** in a **nonaq.** environment, e.g., in an environment of diamond suspended in oil, avoids surface effects resulting in unreliable readings.
- IT 7440-21-3, properties  
(surfaces, elec. properties of, chem. pretreatment in relation to)
- RN 7440-21-3 HCA  
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)
- Si
- CC 76-13 (Electric Phenomena)  
ST **silicon surface** chem pretreatment; treatment **silicon surface**
- IT Electric property  
(of **silicon surfaces**, chem. pretreatment in relation to)
- IT 7440-21-3, properties  
(surfaces, elec. properties of, chem. pretreatment in relation to)

=> d l58 1-11 ti

- L58 ANSWER 1 OF 11 HCA COPYRIGHT 2003 ACS  
TI Method to restore hydrophobicity in dielectric films and materials

- L58 ANSWER 2 OF 11 HCA COPYRIGHT 2003 ACS  
TI X Dynamic mechanical analysis (DMA) of CMP pad materials
- L58 ANSWER 3 OF 11 HCA COPYRIGHT 2003 ACS  
X TI Composition containing crosslinkable matrix precursor and poragen and porous matrix prepared therefrom
- L58 ANSWER 4 OF 11 HCA COPYRIGHT 2003 ACS  
X TI Synthesis of Polystyrene Brushes on Silicate Substrates via Carbocationic Polymerization from Self-Assembled Monolayers
- L58 ANSWER 5 OF 11 HCA COPYRIGHT 2003 ACS  
X TI Monodisperse aerosol particle deposition: prospects for nanoelectronics
- L58 ANSWER 6 OF 11 HCA COPYRIGHT 2003 ACS  
X TI Ring-modified carbon fiber microelectrodes and multi-microelectrode devices
- L58 ANSWER 7 OF 11 HCA COPYRIGHT 2003 ACS  
X TI Thermally stable, low dielectric polyquinolines for aerospace and electronics applications
- L58 ANSWER 8 OF 11 HCA COPYRIGHT 2003 ACS  
X TI Relationship of hemolysis buffer structure, pH and ionic strength to spontaneous contour **smoothing** of isolated erythrocyte membranes
- L58 ANSWER 9 OF 11 HCA COPYRIGHT 2003 ACS  
X TI Heat-resistant adhesives
- L58 ANSWER 10 OF 11 HCA COPYRIGHT 2003 ACS  
X TI Fire-resistant polyester resin compositions
- L58 ANSWER 11 OF 11 HCA COPYRIGHT 2003 ACS  
X TI Polycarboxylic aromatic imide enamels

=> d l58 2 cbib abs hitstr hitind

- X L58 ANSWER 2 OF 11 HCA COPYRIGHT 2003 ACS  
135:130192 Dynamic mechanical analysis (DMA) of CMP pad materials. Li, Irene; Forsthoefel, Kersten M.; Richardson, Kathleen A.; Obeng, Yaw S.; Easter, William G.; Maury, Alvaro (School of Optics/CREOL, Department of Chemistry, University of Central Florida, Orlando, FL, 32816, USA). Materials Research Society Symposium Proceedings, 613 (Chemical-Mechanical Polishing 2000: Fundamentals and Materials Issues), E7.3.1-E7.3.10 (English) 2001. CODEN: MRSPDH. ISSN: 0272-9172. Publisher: Materials Research Society.

- AB In the **semiconductor** industry, there is a need to establish fundamental, mechanism-based, correlation(s) between process conditions, consumables (e.g., pads and slurries), and obsd. process performance in Chem.-Mech. **Polishing (CMP)**. The authors present recent results of studies on polyurethane-based **CMP** pads in static and dynamic conditions using Dynamic Mech. Anal. (**DMA**) to monitor modulus and energy damping changes. Two-layered, composite IC1000 on Suba IV pads, [IC1000 (cast and cured polyurethane elastomer) / Suba IV (polyurethane impregnated polyester felt)], were analyzed: prior to use (fresh); after a 24-h soak in silica-contg. oxide slurry (basic); and after oxide **polishing** (used). Upon comparison a characteristic transition feature due to water is present at subambient temps. in both the slurry soaked and used pads. Exposure of as-received pads to basic oxide slurry results in a broad, high temp. transition thought to be the result of chem.-induced disruption of macrostructural units. **Polishing** (load-enhanced chem. exposure) introduces further changes to the polymer network represented by an apparent degrdn. to the structural species responsible for the high temp. transition in Suba IV.
- CC 76-3 (Electric Phenomena)  
Section cross-reference(s): 47, 48
- ST **semiconductor** chem mech **polishing** pad dynamic analysis
- IT **Polishing**  
(chem.-mech.; dynamic mech. anal. of **CMP** pad materials for **semiconductor** processing)
- IT Composites  
**Semiconductor** device fabrication  
Slurries  
(dynamic mech. anal. of **CMP** pad materials for **semiconductor** processing)
- IT Oxides (inorganic), uses  
Polyesters, uses  
Polymers, uses  
Polyurethanes, uses  
(dynamic mech. anal. of **CMP** pad materials for **semiconductor** processing)

=> d his 159-

FILE 'HCA' ENTERED AT 14:43:07 ON 02 JAN 2003

L59 26268 S PAD OR PADS OR PADDED OR PADDING#  
L60 4 S (L34 OR L45 OR L48 OR L53) AND L59

=> d l60 1-4 cbib abs hitstr hitind

L60 ANSWER 1 OF 4 HCA COPYRIGHT 2003 ACS  
135:156634 **Polishing pad** composition for



**polishing of semiconductor wafers.**

Hasegawa, Toru; Ogawa, Toshihiro; Kurihara, Fumio (JSR Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001214154 A2 20010807, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-333460 20001031. PRIORITY: JP 1999-334688 19991125.

- AB The compns. contain an aq. substance and abrasives in a **non**-aq. substance. Preferably, at least part of the abrasives are dispersed in the aq. substance, and the abrasives have an. size 0.01-100 .mu.m.
- IC ICM C09K003-14  
ICS C09K003-14; B24B037-00; B24D011-00; C08K003-00; C08L101-00; H01L021-304
- CC 57-7 (Ceramics)  
Section cross-reference(s): 76
- ST **polishing pad** compn **semiconductor wafer**; aq substance abrasive **polishing pad**
- IT Polyesters, uses  
(elastomer; in **polishing pad** compn. for **polishing of semiconductor wafers**)
- IT Polyurethanes, uses  
(in **polishing pad** compn. for **polishing of semiconductor wafers**)
- IT **Polishing materials**  
**Semiconductor materials**  
(**polishing pad** compn. for **polishing of semiconductor wafers**)
- IT 1306-38-3, Cerium oxide, uses 1313-13-9, Manganese dioxide, uses  
(abrasive; in **polishing pad** compn. for **polishing of semiconductor wafers**)
- IT 9002-89-5, Polyvinyl alcohol 12619-70-4, Cyclodextrin  
(aq. substance; in **polishing pad** compn. for **polishing of semiconductor wafers**)
- IT 9003-17-2, polybutadiene 9003-56-9, ABS resin  
(in **polishing pad** compn. for **polishing of semiconductor wafers**)

L60 ANSWER 2 OF 4 HCA COPYRIGHT 2003 ACS

132:123755 Thermoplastic resin compositions and abrasive **pads** thereof. Hasegawa, Akira; Nakanishi, Hideo; Kobayashi, Yutaka; Kawamura, Tomoo; Ogawa, Toshihiro (JSR Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000034416 A2 20000202, 6 pp. (Japanese).. CODEN: JKXXAF. APPLICATION: JP 1999-126842 19990507. PRIORITY: JP 1998-133527 19980515.

- AB The abrasive **pads**, esp. suitable for **polishing semiconductor wafer** surfaces, comprise compns. composed of **nonwater**-sol. thermoplastic resins with Shore D hardness .gtoreq.35% and contg. 5-60 vol.% water-sol. substances with av. particle diam. 0.1-500 .mu.m. Thus, a compn. contg. 80 vol.% ethylene-vinyl alc. copolymer (Eval G 110) and 20 vol.% PVA (Poval CP 1000) was molded and pressed to give sheets having Shore D hardness 86, av. particle diam. of PVA 2 .mu.m, **Si wafer polishing** speed 0.6 .mu.m/min, and good

**smoothness of the polished wafer.**

- IC ICM C08L101-00  
ICS B24B037-00; C08J005-14; C08K003-24
- CC 38-3 (Plastics Fabrication and Uses)
- ST **semiconductor wafer polishing**  
polymeric abrasive **pad**; water sol thermoplastic abrasive  
**pad**; ethylene vinyl alc copolymer abrasive **pad**;  
PVA EVA abrasive **pad wafer polishing**
- IT Urethane rubber, uses  
(Elastollan E 690-50; water-insol. thermoplastic resin compns.  
contg. water-sol. polymers for abrasive **pads**)
- IT Abrasives  
(water-insol. thermoplastic resin compns. contg. water-sol.  
polymers for abrasive **pads**)
- IT Linear low density polyethylenes  
(water-insol. thermoplastic resin compns. contg. water-sol.  
polymers for abrasive **pads**)
- IT Polymer blends  
(water-insol. thermoplastic resin compns. contg. water-sol.  
polymers for abrasive **pads**)
- IT 9003-07-0, Polypropylene  
(Novatec PP-MA 1; water-insol. thermoplastic resin compns. contg.  
water-sol. polymers for abrasive **pads**)
- IT 9003-54-7, Acrylonitrile-styrene copolymer  
(Techno AS 270NP; water-insol. thermoplastic resin compns. contg.  
water-sol. polymers for abrasive **pads**)
- IT 74-85-1, Ethene, uses 7585-39-9, Ringdex B 9002-88-4, Novatec  
LD-YF 30 9004-64-2, HPC-L 9011-14-7, Sumipex LG 6 25067-34-9,  
Eval G 110 129406-63-9, Novarex 7020A 196004-30-5, Poval CP 1000  
256346-09-5, Aqua Keep 10SH-NF20  
(water-insol. thermoplastic resin compns. contg. water-sol.  
polymers for abrasive **pads**)

L60 ANSWER 3 OF 4 HCA COPYRIGHT 2003 ACS

128:251486 Removing residue from a **semiconductor wafer**

**bonding pad.** Peng, Tzu-min; Liaw, Yung-haw; Chu,  
Cheng-te; Huang, Hsin-chieh (Taiwan Semiconductor Manufacturing Co.,  
Ltd., Taiwan). U.S. US 5731243 A 19980324, 9 pp. (English).  
CODEN: USXXAM. APPLICATION: US 1995-523775 19950905.

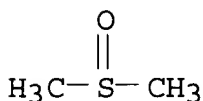
- AB A method for backside **grinding a semiconductor**  
**wafer** and forming a contamination-free bonding **pad**  
connection comprises forming a passivation layer over a metal layer.  
A photoresist pattern is applied with an opening which defines a  
bonding **pad** area and the passivation layer exposed in the  
opening is removed. Next, the photoresist is removed, but a polymer  
residue is often formed on the surfaces of the passivation layer  
surrounding the bonding **pad**. In a novel step, the residue  
is removed using an etchant contg. **DMSO** and  
monoethanolamine and is followed by an O plasma treatment. Next,  
the device side of the **wafer** is covered with a protective  
tape and the backside of the **wafer** is ground back. The  
tape is removed, revealing a contamination-free bonding **pad**

area. A bonding connection is then made to the bonding pad

IT 67-68-5, DMSO, processes  
(etching by; in removing residue from a semiconductor  
wafer bonding pad)

RN 67-68-5 HCA

CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



IC ICM H01L021-28

ICS H01L021-304; H01L021-3065

NCL 438612000

CC 76-3 (Electric Phenomena)

ST residue removal semiconductor wafer bonding  
pad

IT Electric contacts  
(bond pads; removing residue from a  
semiconductor wafer bonding pad)

IT Etching  
Grinding (machining)  
(in removing residue from a semiconductor wafer  
bonding pad)

IT Plasma  
(oxygen; in removing residue from a semiconductor  
wafer bonding pad)

IT Contamination (electronics)  
(removing residue from a semiconductor wafer  
bonding pad)

IT Polymers, processes  
(removing residue from a semiconductor wafer  
bonding pad)

IT Photoresists  
(removing residue from a semiconductor wafer  
bonding pad after removal of)

IT Semiconductor device fabrication  
(removing residue from a semiconductor wafer  
bonding pad in)

IT 67-68-5, DMSO, processes 141-43-5,  
Monoethanolamine, processes  
(etching by; in removing residue from a semiconductor  
wafer bonding pad)

IT 7631-86-9, Silica, processes 12033-89-5, Silicon nitride (Si<sub>3</sub>N<sub>4</sub>),  
processes  
(passivation layer; in removing residue from a  
semiconductor wafer bonding pad)

IT 7782-44-7, Oxygen, processes  
(plasma; in removing residue from a semiconductor  
wafer bonding pad)

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X 117:58673 Alternative method for stripping dry film photoresists. Anon.  
(UK). Research Disclosure, 338, 484 (English) 1992. CODEN: RSDSBB.  
ISSN: 0374-4353.

AB Laminated dry film photoresists are used to define conductor patterns, plating terminal contact **pads** and joining metallurgies on microelectronic device and packaging applications. One of the problems assocd. with this class of resists is the need to use stripping solns. which have high pH and tend to attack the plated metal patterns and the back side of **silicon wafers**. An alternate stripping methodol. that utilizes a **non-aq.** medium to strip these resists is disclosed. The method uses alcs. (methanol, ethanol, isopropanol, etc.) at temps. slightly above room temp. These solvents get absorbed in the resist, swell it and delaminate it from the substrate, leaving virtually no residues. Their efficacy can be enhanced with higher temp./pressure operation and spraying. These solvents are innocuous to the commonly used metallurgies, as well as the back **surface** of the **silicon wafer** and are free of ionic contaminants. All the problems assocd. with the conventional alk. aq. dry film stripping solns. are eliminated without any increase in process complexity.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)